ORDER NO. MKE0001002C1

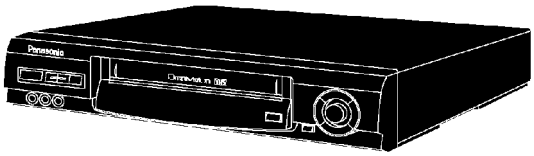
B3

# Service Manual

## Video Cassette Recorder

Omnivision VHS

## PV-V4600 / PV-V4620 / PV-V4620-K / PV-V4630-K / PV-V4640 / PV-V4640-K / PV-V4660



## SPECIFICATIONS

| ITEM | SPECIFICATION | ITEM | SPECIFICATION |
|---|---|---|---|
| Power | Source: 120 V AC, 12 V AC, 60 Hz, 12 Hz<br>Consumption: Approx. 25 W (Power on), Approx. 3.3 W (Power off) | RF Out | CH 3/CH 4 switchable 72.5Ω (open voltage) 75Ω unbalanced |
| Video | Head: 4 rotary heads (4 c.c. scanning system<br>Input Level: VIDEO IN Jack (Phono type): 1.0 Vp-p 75Ω unbalanced<br>Output Level: VIDEO OUT Jack (Phono type): 1.0 Vp-p 75Ω unbalanced<br>Signal-to-Noise Ratio: SP: more than 43 dB<br>LP/SLP: more than 47 dB<br>Horizontal Resolution: Color/Monochrome: more: SP: 230 lines<br>LP/SLP: 230 lines | Tuner | Broadcast Channels: VHF 2–13, UHF 14–69<br>CATV Channels: Midband A (ch 01–ch 14–22)<br>Superband J (ch 23–ch W (23–36)<br>Hyperband (A–EE (37–94)<br>Lowband A-5–A-1 (95–99)<br>Special CABLE channel 5A (01)<br>Ultraband (55–84, 100–125 |
| Audio | Head: Vertical Azimuth: 1 stationary head<br>4° Stereo: 2 rotary heads | Video Signal | EIA Standard: (525 lines, 30 fields) NTSC Color Signal |
| | Input Level: AUDIO IN Jack (Phono type): +10 dBm 50 kΩ unbalanced<br>Output Level: AUDIO OUT Jack (Phono type): 0 dBm 1 kΩ unbalanced | Tape Speed | SP: 1-5/16 in. p.s (33.35 m m/s), LP: 21/32 in. p.s (16.67 m m/s),<br>SLP: 7/16 in p.s (11.12 m m/s) |
| | Frequency Response: Normal Mono: SP: 100 Hz-8 kHz<br>LP: 100 Hz-6 kHz<br>SLP: 100 Hz-5 kHz<br>Hi-Fi Stereo: SP/LP/SLP: 20 Hz-20 kHz | Tape Format | Record/Playback Time: 8 hr. with T-160 min. type tape used in SLP mode<br>F-REW time: ...ss than 2-1/2 min. (T-120 min. type tape)<br>Tape width: 12.7 mm (1/2 inch); high density tape |
| | Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB<br>LP/SLP: more than 40 dB<br>Hi-Fi Stereo: SP/LP/SLP: more than 80 dB | Operating Condition | 5°C-40°C (41°F-104 °F) (Temperature;<br>10 %-75 % (Humidity) |
| | Wow and Flutter: Normal Mono: SP: Less than 0.2 % WRMS<br>LP: Less than 0.3 % WRMS<br>SLP: Less than 0.4 % WRMS<br>Hi-Fi Stereo: Less than 0.01 5 % WRMS | Dimension | 430 mm x 94 mm x 260 mm (W x H x D);<br>(16-15/16 inch x 3-7/8 inch x 9-3/4 inch (W x H x D) |
| | | Weight: | 3.4 kg (7.4 lbs); |

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

# 1. SAFETY PRECAUTIONS

### GENERAL GUIDELINES

## 1. IMPORTANT SAFETY NOTICE

**There are special components used in this equipment which are important for safety. These parts are marked by⚠ in the Schematic Diagrams, Circuit BoardLayout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permissionof manufacturer.**

2. **An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician fromaccidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.**
3. **When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
5. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

**LEAKAGE CURRENT COLD CHECK**

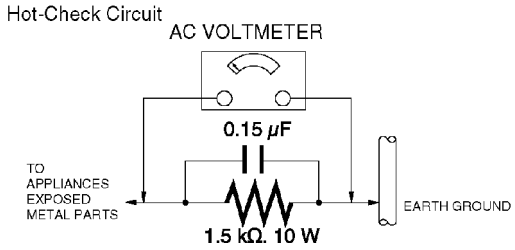
1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallicpart has a return path to the chassis, the reading should be between 1 M Ω and 5.2 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.**

**LEAKAGE CURRENT HOT CHECK**
**(See figure 1.)**

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**

2. **Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in figure 1.**
3. **Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In casea measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.**

**Figure 1**




# 2. PREVENTION OF ELECTRO-STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

**Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits, some field-effecttransistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).**

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain andwear a commercially available discharging ESD wrist strap, which should remove electrostatic charge for potential shock**

**reasons prior to applying power to the unit under test.**

2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together byconductive foam, aluminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**
   **CAUTION:Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.**
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor cangenerate static electricity (ESD) sufficient to damage an ES device).**

**"NOTE to CATV system installer:**
**This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connectedto the grounding system of the building, as close to the point of cable entry as practical."**

# 3. OPERATION GUIDE

# 4. SERVICE NOTES (PLEASE READ)

## 4.1. SERVICE NOTES

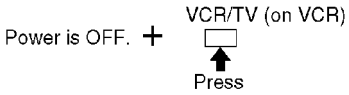
### 4.1.1. SIMPLIFIED FAULT FINDING DATA

**Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit fault code will be displayed in F.I.P.**

**The Simplified Fault finding data is stored in the Memory IC (IC6005). This data is cleared after it is displayed, and then the POWER button is pressed back on.**

**1. With power turned off, press VCR/TV button on VCR (for over 3 seconds if VCR is not in shut off condition).**

**Fig. 1-1**




**2. Fault code (4 digit number) will be displayed in F.I.P. as shown.**

**Fig. 1-2**

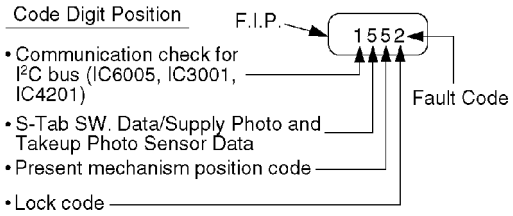

Code Digit Position
F.I.P.
1552
Fault Code
• Communication check for I²C bus (IC6005, IC3001, IC4201)
• S-Tab SW. Data/Supply Photo and Takeup Photo Sensor Data
• Present mechanism position code
• Lock code

**Fig. 1-3**

| Explanation of Codes | Code No. | | | |
|---|---|---|---|---|
| **Communication check for I²C bus (IC6005, IC3001, IC4201)** (Refer to Fig. 1-4.) | 1 ~ 8 | | | |
| **S-Tab SW. Data/Supply Photo and Takeup Photo Sensor Data** (Refer to Fig. 1-5.) | | 1 ~ 8 | | |
| **Present Mechanism Position Code** Mechanism Position is indicated. (Refer to Fig. 1-6.) | | | 1 2 3 4 5 6 7 8 9 A B C D | |
| **Lock Code (See Note)** • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction) | | | 1 2 | 0 1 2 3 4 4 |

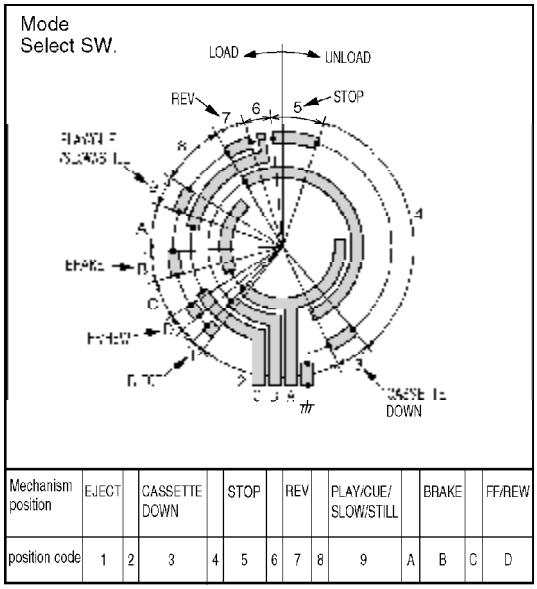
**Fig. 1-4**

| Communication check for I²C bus (IC6001↔IC6005) | Communication check for I²C bus (IC6001↔IC3001) | Communication check for I²C bus (IC6001↔IC4201) | Code No. |
|---|---|---|---|
| OK | OK | OK | 1 |
| | | NG | 2 |
| | NG | OK | 3 |
| | | NG | 4 |
| NG | OK | OK | 5 |
| | | NG | 6 |
| | NG | OK | 7 |
| | | NG | 8 |

**Fig. 1-5**

| S-Tab SW. condition | Supply Photo Sensor condition | Takeup Photo Sensor condition | Code No. |
|---|---|---|---|
| ON | OFF | OFF | 1 |
| | ON | OFF | 2 |
| | OFF | ON | 3 |
| | ON | ON | 4 |
| OFF | OFF | OFF | 5 |
| | ON | OFF | 6 |
| | OFF | ON | 7 |
| | ON | ON | 8 |

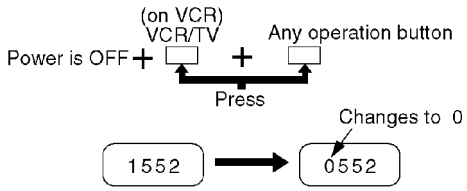
**Fig. 1-6**




| Mechanism position | EJECT | | CASSETTE DOWN | | STOP | | REV | | PLAY/CUE/ SLOW/STILL | | BRAKE | | FF/REW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| position code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D |

**3. While pressing VCR/TV button on VCR with power turned off, press any operation button on either VCR, or remote to detect that a key has been pressed.**
**The 1st digit changes to "0" only when key is detected.**

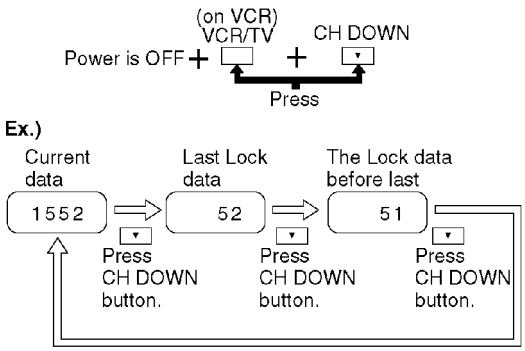
**Fig. 1-7**




**4. When 1 to 4 listed in Lock code occurs, Lock data will be stored**

into EEPROM IC (Current data, Last Lock data, and the Last Lock data before last). Lock data displayed in F.I.P. will be changed by pressingCH DOWN button.

Fig. 1-8




**Note:**

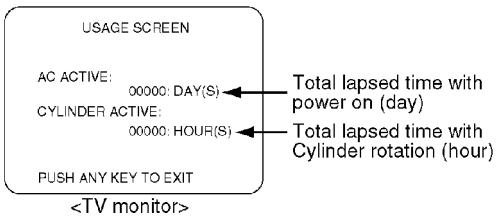
1. Lock data will be kept after AC Cord is unplugged.
2. When 1 to 4 listed in Lock code occurs, the VCR goes into VCR shut-off condition. VCR stops and all VCR function buttons except for power become non-operational.

### 4.1.2. USAGE SCREEN MODE

**This function displays the Total lapsed time with power on (day) and the Total lapsed time with Cylinder rotation (hour) on the TV monitor.**

1. With power turned on without a cassette, press VCR/TV button on VCR and 7 key on remote together.
   The USAGE SCREEN will be displayed on the TV Monitor.

Fig. 1-9



<TV monitor>

**Note:**

After replacing the Cylinder Unit, press COUNTER RESET button on remote in this mode. Only Total lapsed time with Cylinder rotation (hour) will be cleared to 0.

2. To release from Usage Screen Mode, press any operation button on VCR in this mode. VCR will return to normal operation mode.

### 4.1.3. EEPROM IC (IC6005), MAIN C.B.A. REPLACEMENT NOTE

**After replacing EEPROM IC (IC6005) or Main C.B.A., be sure to perform the "PG SHIFTER ADJUSTMENT" in ELECTRICAL ADJUSTMENT procedures.**

## 4.1.4. SERVICE POSITION

### 4.1.4.1. Service Position

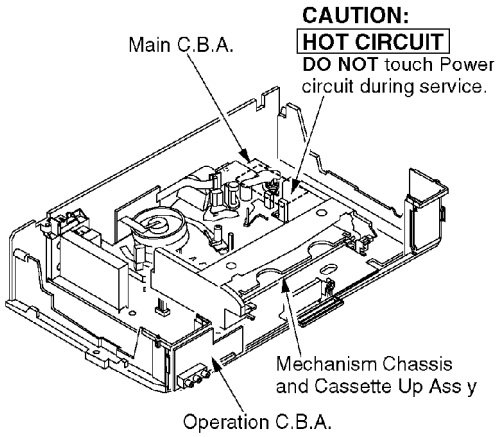
| Service Position | Purpose |
|---|---|
| Service Position (1) | Mechanism check<br>Mechanical adjustment<br>Electrical adjustment |
| Service Position (2) | Main C.B.A. check |

**CAUTION:**

**HOT CIRCUIT (Primary circuit) exists on the Main C.B.A.**
**Use extreme care to prevent accidental shock when servicing.**

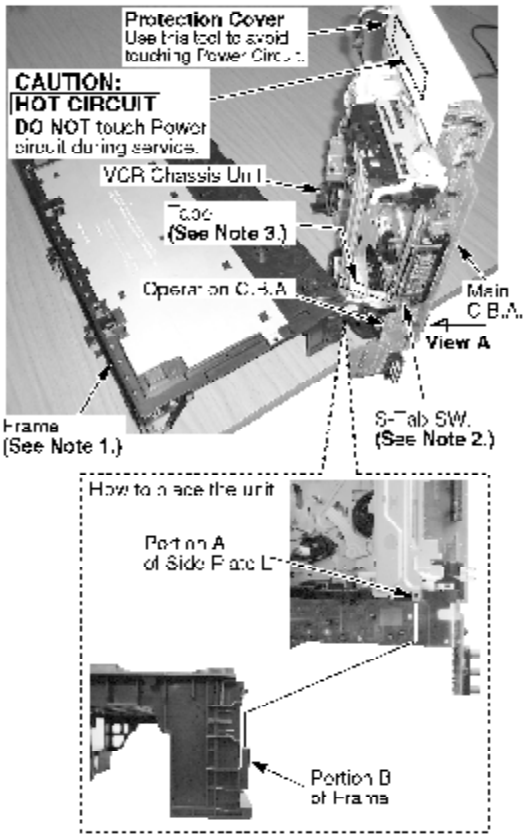
#### 4.1.4.1.1. Service Position (1)

**Fig. 2-1**




#### 4.1.4.1.2. Service Position (2)

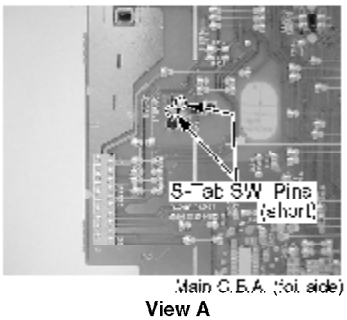
**Fig. 2-2**




**Note:**

1. **Alternative method in Service Position (2)**
   **2 piled VHS Cassette Tapes can be substituted for the Frame as shown in Fig. 2-2.**
2. **When recording in Service Position (2), short the S-Tab SW. Pins on foil side of Main C.B.A. to turn this SW. on.**

**Fig. 2-3**




**View A**

Alternative method:
Cover the S-Tab SW. with masking tape.

3. **Place the tape between the Cassette Up Ass'y and Main C.B.A. to get a stability.**
4. **When disassembling/assembling, refer to "CABINET SECTION" in**

# DISASSEMBLY/ASSEMBLY PROCEDURES.

**To avoid touching Power Circuit,**
following Tool (**Protection Cover**) is recommended.

**How to make the Protection Cover:**

1. Cut a Cassette Tape Case as shown.

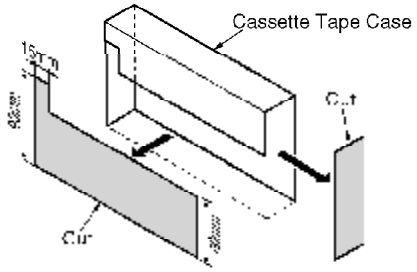



Fig. 2-4

2. Cover the Power Circuit portion on Main C.B.A. with it.

**Note:**
The Protection Cover is not supplied.

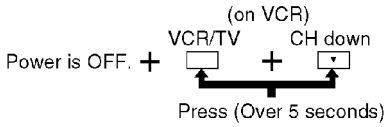
## 4.1.5. HOT CIRCUIT

**Primary circuit exists on the Main C.B.A.**
**This circuit is identified as " HOT " on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.**

## 4.1.6. SERVICE MODE

**In order to inhibit detection of the Supply& Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.**

**Fig. 3-1**

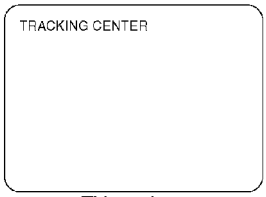



**The power comes on and the unit goes into service mode.**
**In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.**
**To release from this mode, press POWER button off or disconnect AC Plug.**

## 4.1.7. TRACKING CENTER MODE (TRACKING FIX AT CENTER)

**Insert the Cassette tape. Set the unit into Service Mode. Play back the Cassette tape. Press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor. In this mode, the tracking is fixed at center. (Autotracking and manual tracking functions are not operational.)**

**Fig. 3-2**




<TV monitor>

**To release from this mode, press PLAY or STOP button.**

### 4.1.8. CAUTION FOR INSTALLATION OF FRONT PANEL ASS'Y

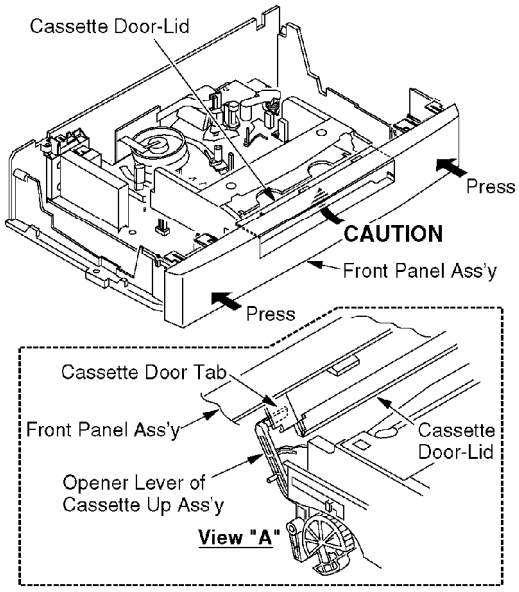
**CAUTION:**

**Opener Lever may be damaged when Front Panel Ass'y is installed, with Cassette Door-Lid of Front Panel Ass'y and Opener Lever of Cassette Up Ass'y set incorrectly.**

**Install the Front Panel Ass'y as follows:**

1. **Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.**
2. **Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.**

**Fig. 4**




### 4.1.9. METHOD FOR LOADING/UNLOADING OF MECHANISM

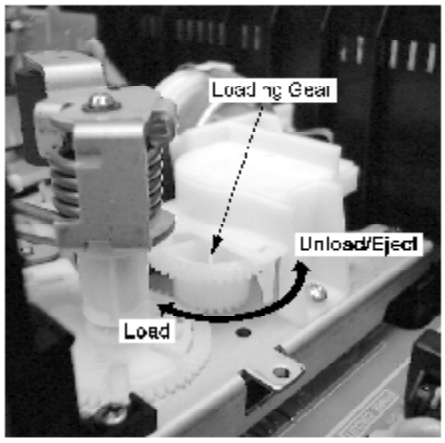
**(Manual Method)**

**Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.**

**Note:**

**Do not use this method if Mechanism is jammed or locked.**

**Fig. 5-1**

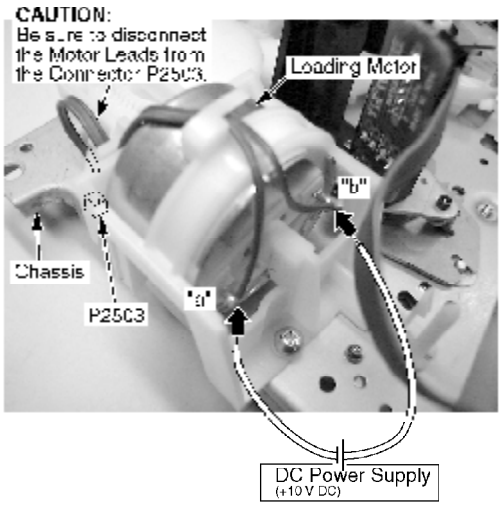



**(Electrical Method)**
**Apply+10.0 V DC Power Supply to the Loading Motor terminals.**
**Loading**
**DC+ to Portion "a," DC - to Portion "b"**
**Unloading**
**DC - to Portion "a," DC+ to Portion "b"**

**CAUTION:**

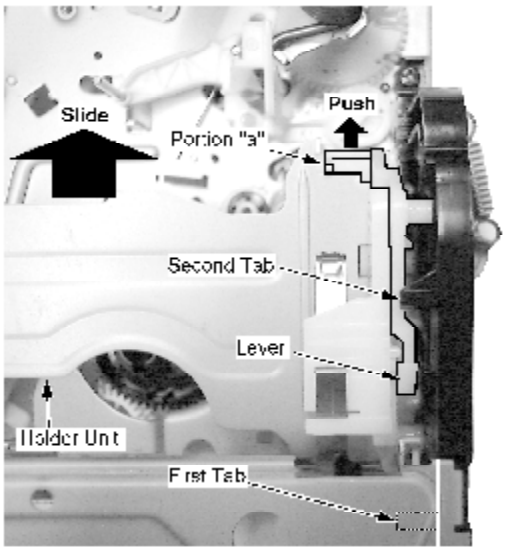
**Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503.**
**Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.**

**Fig. 5-2**




**When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.**

**Fig. 5-3**




## 4.1.10. HOW TO REMOVE A JAMMED TAPE

**CAUTION:**

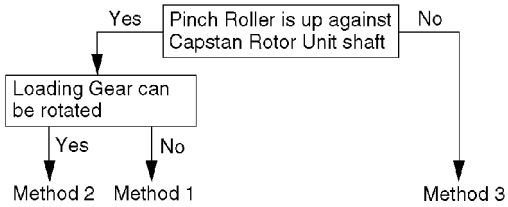
**Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.**

**Remove a jammed tape as follows:**

### 4.1.10.1. Manual Method

**When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.**

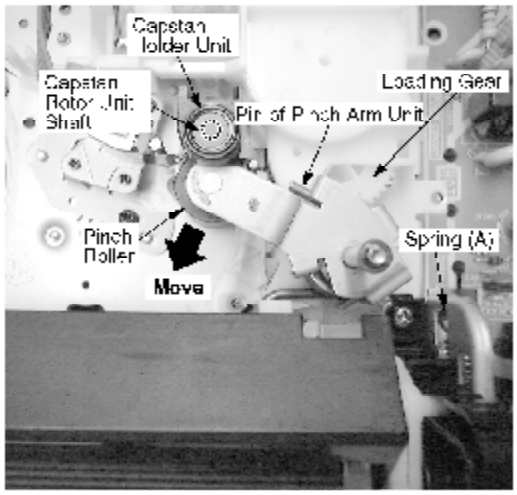
**Fig. 6-1**




#### 4.1.10.1.1. Method -1:

**1. Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.**

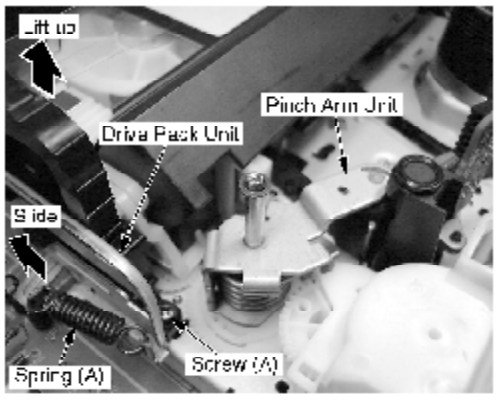
**Fig. 6-2**




Top View

2. **Remove the tape from the tape path.**
3. **Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.**
4. **Unhook Spring (A) of the Drive Rack Arm.**
5. **Remove Screw (A).**
6. **Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassettetape from the Cassette Up Ass'y.**
7. **Check the cause of mechanical trouble and repair.**

**Fig. 6-3**




**4.1.10.1.2. Method -2:**

1. **Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.**

2. Perform Step 2 through Step 7 of Method -1.

**4.1.10.1.3. Method -3:**

1. Perform Step 2 through Step 7 of Method -1.

**Note:**

**After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECTPosition Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)**

**4.1.10.2. Electrical Method**

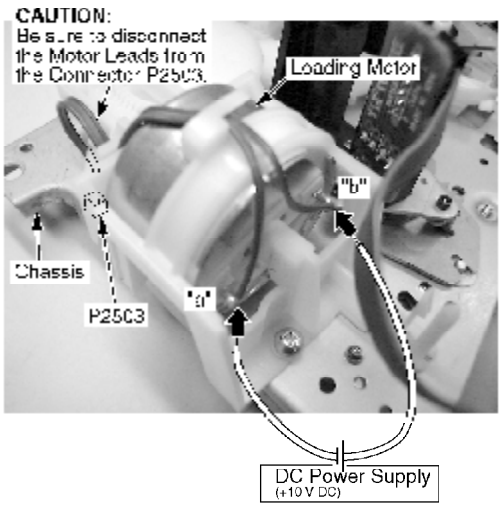
**Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.**

**CAUTION:**

1. **Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503. Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.**
2. **If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."**

1. **Be sure to disconnect the Motor Leads from the Connector P2503.**
2. **Apply+10.0 V DC Power Supply to the Loading Motor terminals.**
3. **When the Loading Posts reach the fully unloaded position, remove the Power Supply.**

**Fig. 7**




4. **Rewind the tape into the cassette by turning the Center Clutch Unit**

counterclockwise.

5. Eject the cassette by applying+10.0 V DC Power Supply again.

### 4.1.11. BLACK SCREWS ON THE CHASSIS

**Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.**

### 4.1.12. HOW TO RESET ALL VCR MEMORY FUNCTIONS

**To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, nocassette inserted), hold down the PLAY and CH UP buttons on the unit togetherfor more than 5 seconds.**
**Power will shut off.**

### 4.1.13. HOW TO CONFIRM AUTO CLOCK SET FEATURE

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

### 4.1.14. VARIABLE VOLTAGE ISOLATION TRANSFORMER

**An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resultingin personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.**
**Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.**

### 4.1.15. SPECIAL NOTE

**All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.**

### 4.1.16. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

**The following procedures are recommended for the replacement of the leadless components used in this unit.**

1. Preparation for replacement
   - A. Soldering Iron
     Use a pencil-type soldering iron that uses less than 30 watts.
   - B. Solder
     Eutectic Solder (Tin 63%, Lead 37%) is recommended.
   - C. Soldering time
     Do not apply heat for more than 4 seconds.
   - D. Preheating
     Leadless capacitor must be preheated before installation. -

**(266°F ~ 302°F)**
**(130°C ~150°C) for about 2 minutes.**

**Note:**

**A. Leadless components must not be reused after removal.**

**B. Excessive mechanical stress and rubbing of the component electrode must be avoided.**

**2. Removing the leadless component**

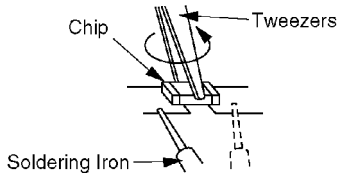
**Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.**

**Note:**

**A. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.**

**B. Be careful not to break the copper foil on the printed circuit board.**

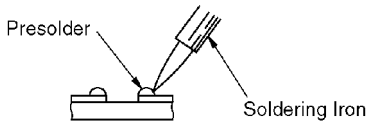
**Fig. 8-1**




**3. Installing the leadless component**

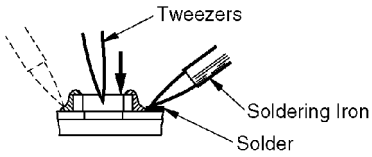
**A. Presolder the contact points on the circuit board.**

**Fig. 8-2**




**B. Press the part downward with tweezers and solder both electrodes as shown below.**

**Fig. 8-3**




**Note:**

**Do not glue the replacement leadless component to the circuit**

**board.**

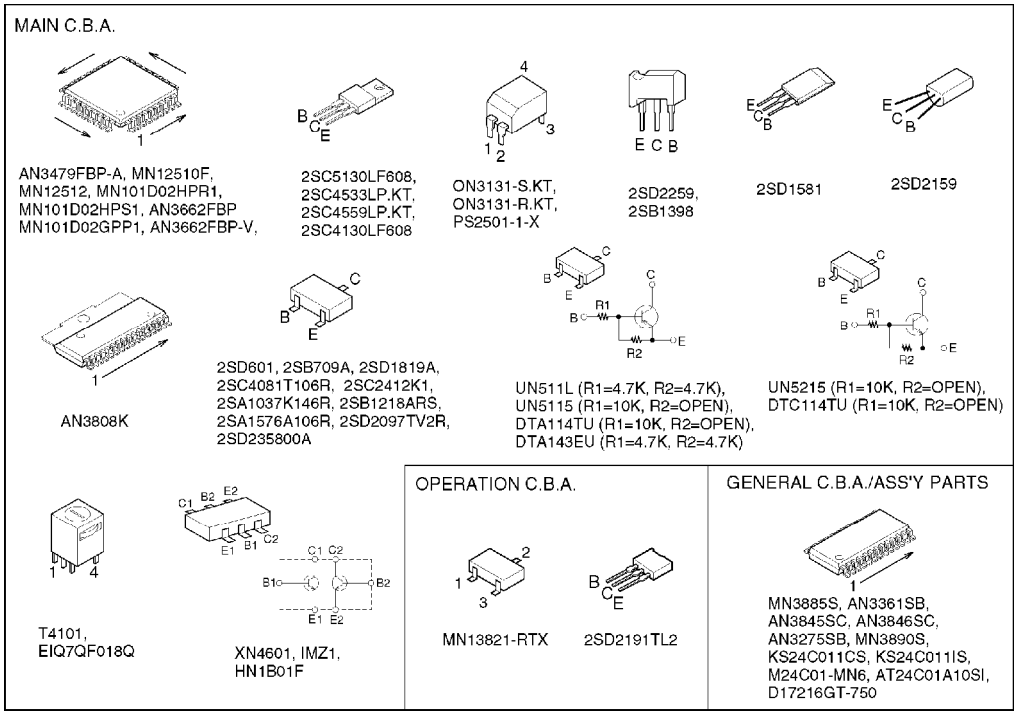
### 4.1.17. MODEL NO. IDENTIFICATION MARK

**Use Marks shown in the chart below to distinguish the different models included in this Service Manual.**

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

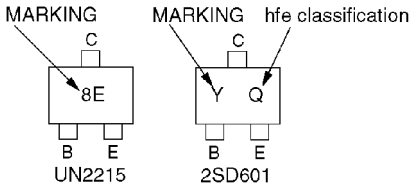
**Note:**
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "Z."

## 4.2. IC, TRANSISTOR AND CHIP PART INFORMATION

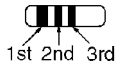



### 4.2.1. HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

| MARKING | PART NO. | MARKING | PART NO. |
|---|---|---|---|
| B | 2SB709A | Z | 2SD1819A |
| B | 2SC4081T106R | 1R | 2SB970 |
| B | 2SB1218ARS | 5C | XN4601 |
| F | 2SA1037K146R | 6E | UN5115 |
| F | 2SA1576A106R | 6Q | UN511L |
| Y | 2SD601 | 8E | UN5215 |




### 4.2.2. HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.




**The widest color band must be read first for value.**

**1. RESISTOR**

**There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.**
**A. ERD10LLJ: Refer to above type.**
**B. ERD10TLJ: The narrow color band must be read first for value.**
**If this part is included in the parts list, be sure that the color band is read properly when servicing.**

**2. CAPACITOR**

**Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.**

**CAUTION :**

**Once chip parts are removed, they must not be reused.**
**Always use a new part when installing a chip part.**

# 5. DISASSEMBLY/ASSEMBLY PROCEDURES

## 5.1. CABINET SECTION

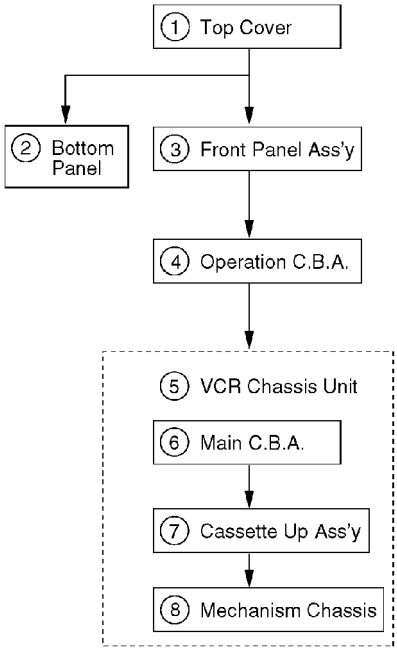
### 5.1.1. Disassembly Flowchart

**Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.**

**CAUTION:**

**Disconnect AC plug before disassembly.**

**Fig. D1**

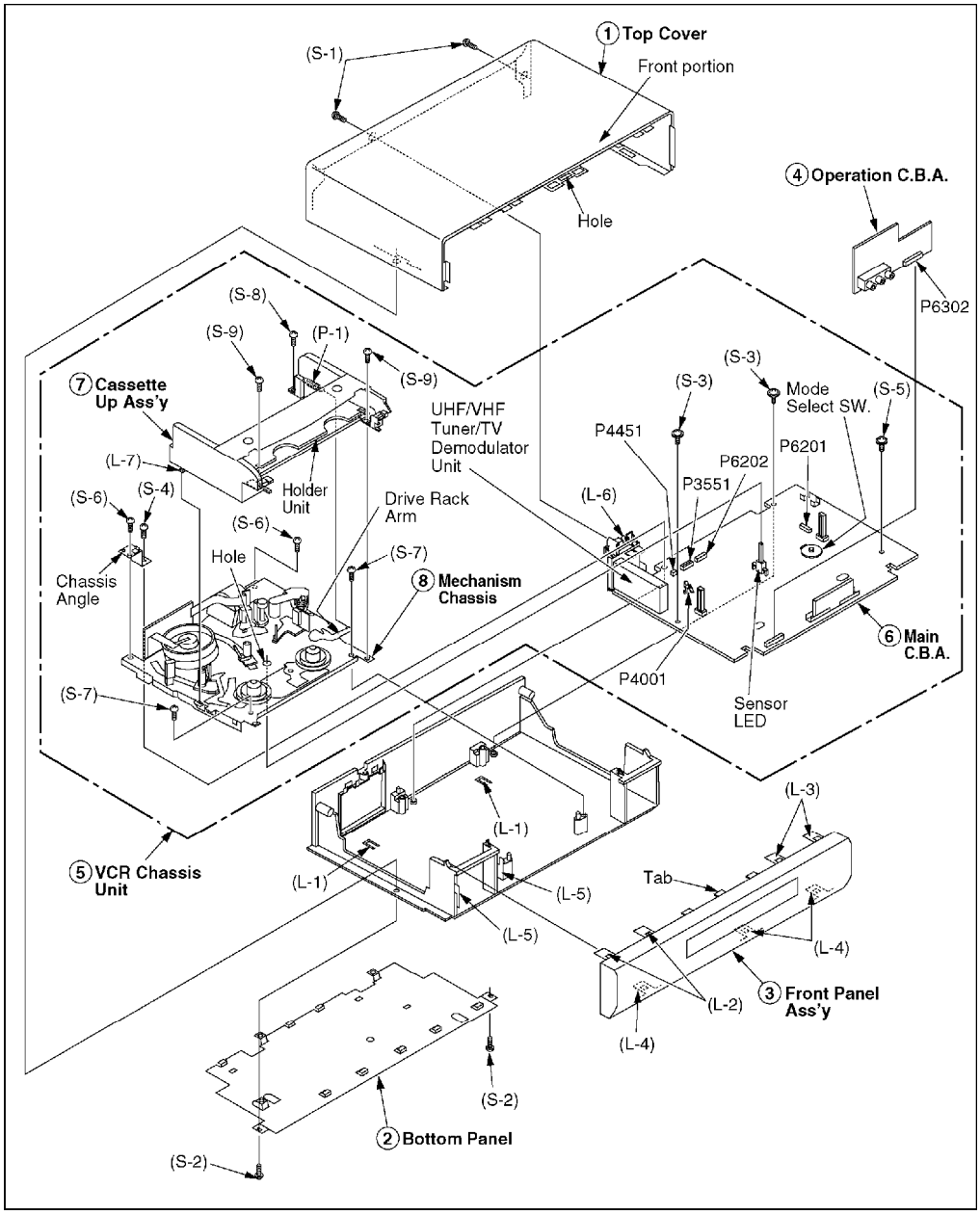



## 5.1.2. Disassembly Method

| STEP /LOC. No. | PART | Fig. No. | REMOVE | Note |
|---|---|---|---|---|
| ① | Top Cover | D2 | 2(S-1), 2(S-2) | 1 |
| ② | Bottom Panel | D2 | 2(S-3), (S-4), 2(L-1) | --- |
| ③ | Front Panel Ass'y | D2 | 2(L-2), 2(L-3), 3(L-4) | 2 |
| ④ | Operation C.B.A. | D2 | P6302, 2(L-5) | --- |
| ⑤ | VCR Chassis Unit | D2 | (S-5), 2(S-6), Chassis Angle, 2(S-7), (L-6) | 3 |
| ⑥ | Main C.B.A. | D2 | P6201, P6202, P3551, P4451, P4001 | 4 |
| ⑦ | Cassette Up Ass'y | D2 | (S-8), 2(S-9), (L-7), (P-1) | 5 |
| ⑧ | Mechanism Chassis | D2 | ---------- | --- |
| ↑ A | ↑ B | ↑ C | ↑ D | ↑ E |

**How to read chart shown above:**
**A:Order of Procedure steps.**
**When reassembling, perform steps(s) in reverse order.**
**These numbers are also used as the identification (location) No. of parts in Figures.**
**B: Part to be removed or installed.**
**C: Fig. No. showing Procedure or Part Location.**
**D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.**
**2(S-1)= 2 Screws (S-1), 2(L-1)= 2 Locking Tabs (L-1),**
**(P-1)= Spring (P-1)**
**E: Refer to "Notes in chart."**

**Fig. D2**




5.1.2.1. Notes in chart

**1. Installation of Top Cover**

**Install the Top Cover front portion at a downward angle so that the tab on the Front Panel Ass'y fits into the hole in the Top Cover. Then, lower the rear portion into place and tighten 2 Screws (S-1) and 2 Screws (S-2).**

**2. Installation of Front Panel Ass'y**

**CAUTION:**

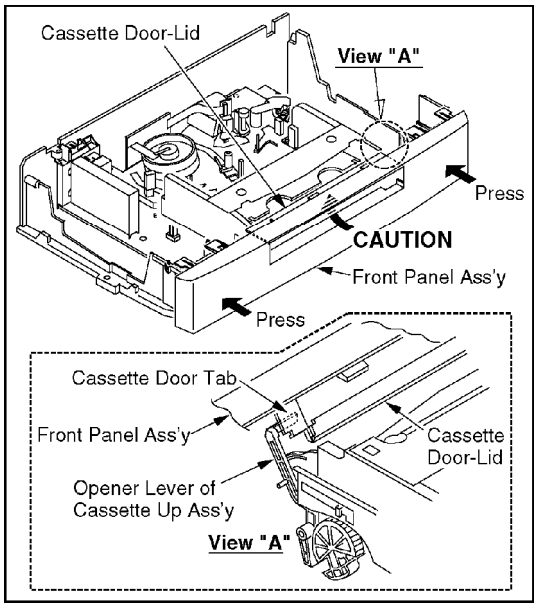
**Opener Lever may be damaged when Front Panel Ass'y is installed, with Cassette Door-Lid of Front Panel Ass'y and Opener**

**Lever of Cassette Up Ass'y set incorrectly.**

**A. When installing the Front Panel Ass'y, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.**

**B. Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.**

**Fig. D3**




**3. Installation of VCR Chassis Unit**

**When installing 2 Screws (S-7), slide the Holder Unit of the Cassette Up Ass'y (Refer to "METHOD FOR LOADING/ UNLOADING OF MECHANISM" in SERVICE NOTES) totighten screws. Then, slide it back to the EJECTPosition.**

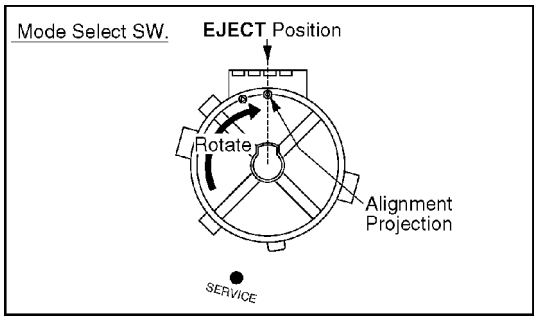
**Make sure that Mechanism and Cassette Up Ass'y are in the EJECT Position. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLYPROCEDURES.)**

**4. Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.**

**A. Make sure the Mode Select SW. on the Main C.B.A. is in EJECT position. If not, rotate the Mode Select SW. until the alignment projection is in the EJECTPosition.**

**B. Make sure the Mechanism and Cassette Up Ass'y are in the EJECTPosition. (Refer to "EJECT Position Confirmation"in DISASSEMBLY/ASSEMBLY PROCEDURES.)**

Fig. D4




C. Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 5 Connectors (P6201, P6202, P3551, P4001,and P4451) are aligned and seated securely.

5. Installation of Cassette Up Ass'y

A. Confirm that the Locking Tab (L-7) under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette UpAss'y towards the back.

B. When installing 2 Screws (S-9), slide the Holder Unit (Refer to "METHOD FOR LOADING/UNLOADING OF MECHANISM" in SERVICE NOTES) to tighten screws.Then, slide it back to the EJECTPosition.

C. Hook Spring (P-1) to the Drive Rack Arm on the Mechanism Chassis.

## 5.2. MECHANISM SECTION

### 5.2.1. Disassembly/Reassembly Method

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
**Perform all disassembly/reassembly and alignments procedures in EJECT Position.**

| Step/Loc No. | Prior Step(s) | Part | Fig. No. | Remove | Alignment/Adjustment |
|---|---|---|---|---|---|
| ① | ---------- | Grounding Plate Unit | J2-1 | (S-1) | Adjustment |
| ② | ---------- | Full Erase Head | J2-1 | (L-1) | |
| ③ | 1 | Cylinder Unit | J2-1 | P4092, Unsolder, 2(S-2), 3(S-3), Head Amp C.B.A. | TAPE INTERCHANGEABILITY Adjustment |
| ④ | ---------- | Capstan Belt | J3-1 | - | |
| ⑤ | ---------- | Support Angle | J3-1 | (S-4), 2(S-5) | |
| ⑥ | 5 | Intermediate Gear B | J3-1 | (L-2) | Gear Alignment |
| ⑦ | 4,5,6 | Main Cam Gear | J3-1 | Main Cam Push Nut | Gear Alignment |
| ⑧ | 4 | Center Clutch Unit | J4-1 | (W-1) | |
| ⑨ | 4,8 | Changing Gear Spring | J4-1 | - | |
| ⑩ | 4,8,9 | Changing Gear | J4-1 | - | |
| ⑪ | 4,8,9,10 | Idler Arm Unit | J4-1 | - | |
| ⑫ | ---------- | Reel Gear | J5-1 | 2(L-3) | |
| ⑬ | 4,5,6,7,8,9,10 | Main Rod | J5-1 | (W-2), (L-4) | Gear Alignment |
| ⑭ | ---------- | Stopper Angle | J6-1 | (S-6) | |
| ⑮ | 4,5,14 | Capstan Rotor Unit | J6-1 | - | |
| ⑯ | 4,5,14,15 | Oil Seal | J6-1 | - | |
| ⑰ | 4,5,14,15 | Capstan Stator C.B.A. | J6-1 | P2503, 2(S-7) | |
| ⑱ | ---------- | MR Head | J6-1 | (S-8), Unsolder | MR HEAD GAP Adjustment |
| ⑲ | 4,8,9,10,13 | T Loading Arm Unit | J7-1 | - | Gear Alignment |
| ⑳ | 4,5,6,7,8,9,10,13,19 | S Loading Arm Unit | J7-1 | - | Gear Alignment |
| ㉑ | ---------- | T Brake Unit | J8-1 | - | |
| ㉒ | ---------- | Tension Control Arm Unit | J8-1 | 3(L-5) | |
| ㉓ | 21 | T Reel Table | J8-1 | - | |
| ㉔ | 22 | S Reel Table | J8-1 | - | |
| ㉕ | 22 | Tension Arm Unit | J8-1 | 2(L-6), (P-1), (P-2) | |
| ㉖ | 22,25 | Loading Post Base-T Unit | J9 | - | P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment |
| ㉗ | 22,25 | Loading Post Base-S Unit | J9 | - | |
| ㉘ | ---------- | Opener Piece | J10-1 | 2(L-7) | |
| ㉙ | 4,5,6,7 | Drive Rack Arm | J10-1 | - | |
| ㉚ | 28 | Pinch Arm Unit | J10-1 | (C-1) | |
| ㉛ | 28,30 | P5 Arm Unit | J10-1 | - | |
| ㉜ | 5,6,28 | Intermediate Gear A | J10-1 | - | Gear Alignment |
| ㉝ | ---------- | Motor Block Unit | J11-1 | 2(S-9) | |
| ㉞ | ---------- | Audio Control Head Unit | J11 | (S-10) | TAPE INTERCHANGEABILITY Adjustment |
| ㉟ | 5,6,28,30,32,33 | Lift Gear | J11 | - | |
| ㊱ | 4,5,14,15,33 | Capstan Holder Unit | J11 | 3(S-11) | |
| ㊲ | 22,25 | Tension Arm Boss | J11 | (L-8) | |
| ㊳ | 4 | SS Brake Arm Unit **(Model: E, F, G)** | J5-1 | (L-9), (P-3) | |
| ㊴ | 4,5,14,15,17 | Sub Rotor Unit **(Model: E, F, G)** | J6-1 | - | |
| ㊵ | ---------- | Cleaner Arm Unit **(Model: A, B, C, E, F, G)** | J11 | (L-10) | |

A B C D E F

**How to read chart shown above:**
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)
F: Alignment/Adjustment which is required when installing or replacing each Parts.

**CAUTION:**
Removed Cut Washer is not reusable.
If removed, install a new one.

## 5.2.2. Inner Parts Location

**Note:** BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

**Fig. J1-1**

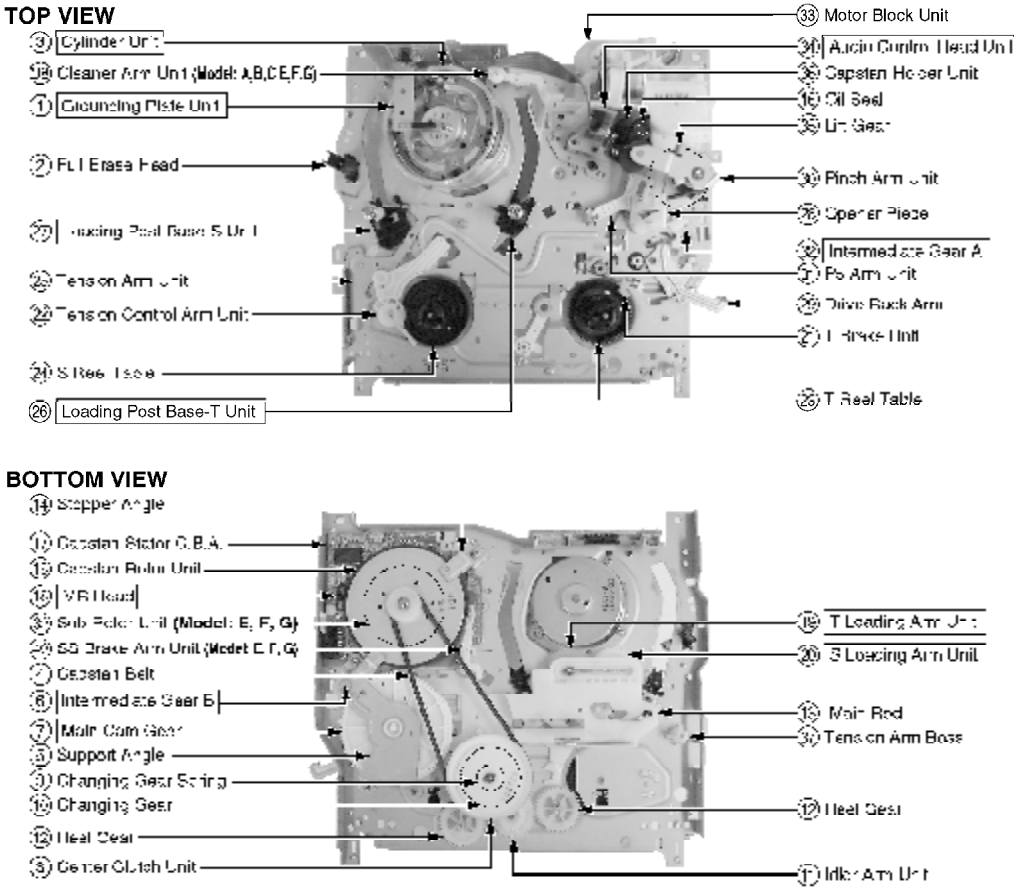
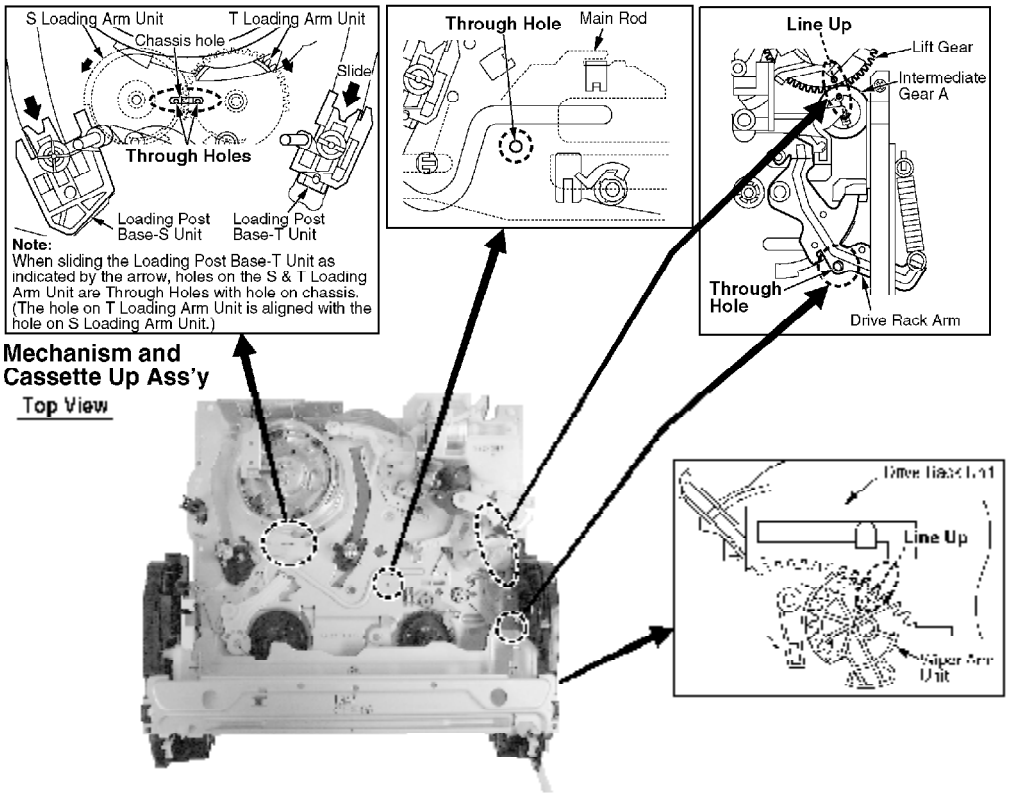

TOP VIEW
③ Cylinder Unit
⑱ Cleaner Arm Unit (Model: A,B,C,E,F,G)
① Grounding Plate Unit
② FL I Erase Head
㉙ Loading Post Base-S Unit
㉕ Tension Arm Unit
㉔ Tension Control Arm Unit
㉔ S Reel Table
㉖ Loading Post Base-T Unit
㉝ Motor Block Unit
㉛ Audio Control Head Unit
㉜ Capstan Holder Unit
⑯ Oil Seal
㉟ Lift Gear
㉞ Pinch Arm Unit
㉘ Opener Piece
㉒ Intermediate Gear A
㉑ Pb Arm Unit
㉗ Drive Rack Arm
㉗ T Brake Unit
㉖ T Reel Table
BOTTOM VIEW
⑭ Stepper Angle
⑪ Capstan Stator C.B.A.
⑬ Capstan Rotor Unit
⑩ VR Head
㉓ Sub Roter Unit (Model: E, F, G)
㉙ S2 Brake Arm Unit (Model: E, F, G)
⑨ Capstan Belt
⑧ Intermediate Gear B
⑦ Main Cam Gear
③ Support Angle
⑤ Changing Gear Spring
⑥ Changing Gear
⑫ Reel Gear
④ Center Clutch Unit
⑲ T Loading Arm Unit
⑳ S Loading Arm Unit
⑮ Main Rod
㉚ Tension Arm Base
⑫ Reel Gear
⑰ Idler Arm Unit

Fig. J1-2

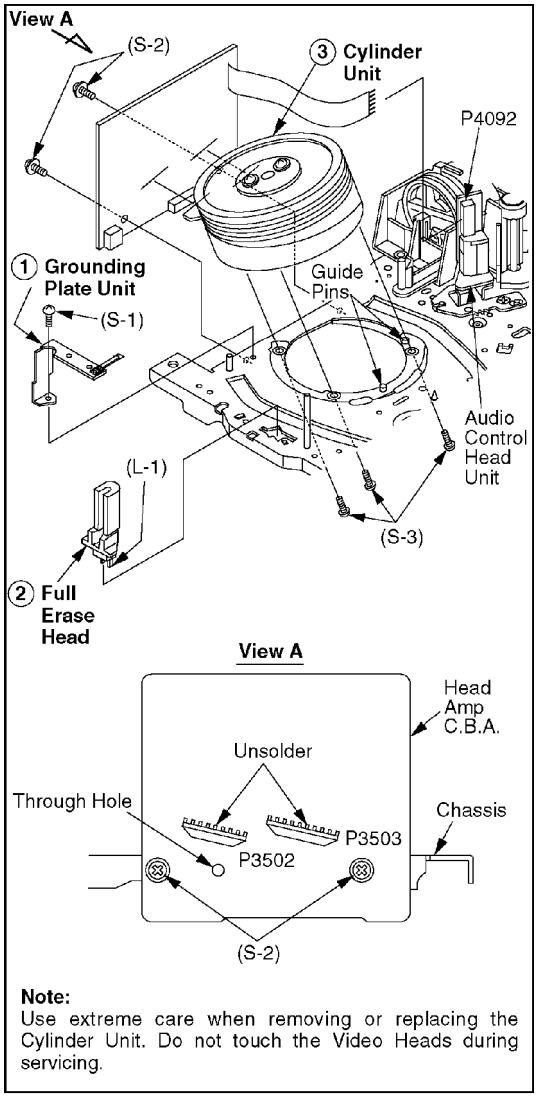
## 5.2.3. EJECT Position Confirmation

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.


S Loading Arm Unit
T Loading Arm Unit
Chassis hole
Slide
Through Holes
Loading Post Base-S Unit
Loading Post Base-T Unit
Note:
When sliding the Loading Post Base-T Unit as indicated by the arrow, holes on the S & T Loading Arm Unit are Through Holes with hole on chassis. (The hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.)
Through Hole
Main Rod
Line Up
Lift Gear
Intermediate Gear A
Through Hole
Drive Rack Arm
Mechanism and Cassette Up Ass'y
Top View
Line Up

## 5.2.4. Grounding Plate Unit, Full Erase Head, and Cylinder Unit

**Fig. J2-1**




**Note:**
Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.

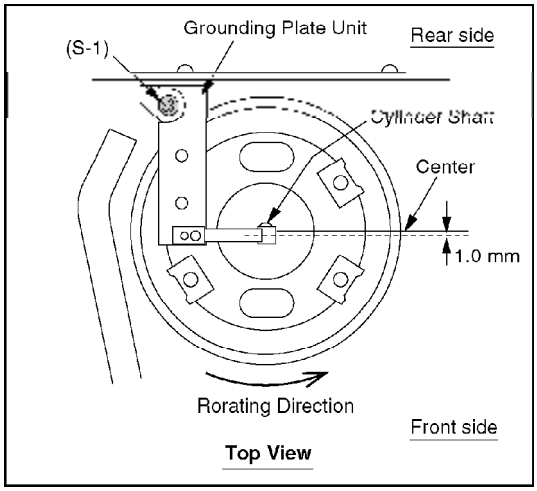
5.2.4.1. Reassembly Notes

**1. Adjustment of Grounding Plate Unit**

**A. After installing, make sure that the Grounding Plate Unit, on the top side of mechanism chassis, is positioned on the front side of the Cylinder shaft so that the center line of the plateis just less than 1.0 mm measured from the center of the Cylinder shaft. If required, adjust the plate position by loosening Screw (S-1). Never install the Grounding Plate Unit on the rear side of the Cylinder shaft.**

**Incorrect positioning will cause cylinder buzz.**

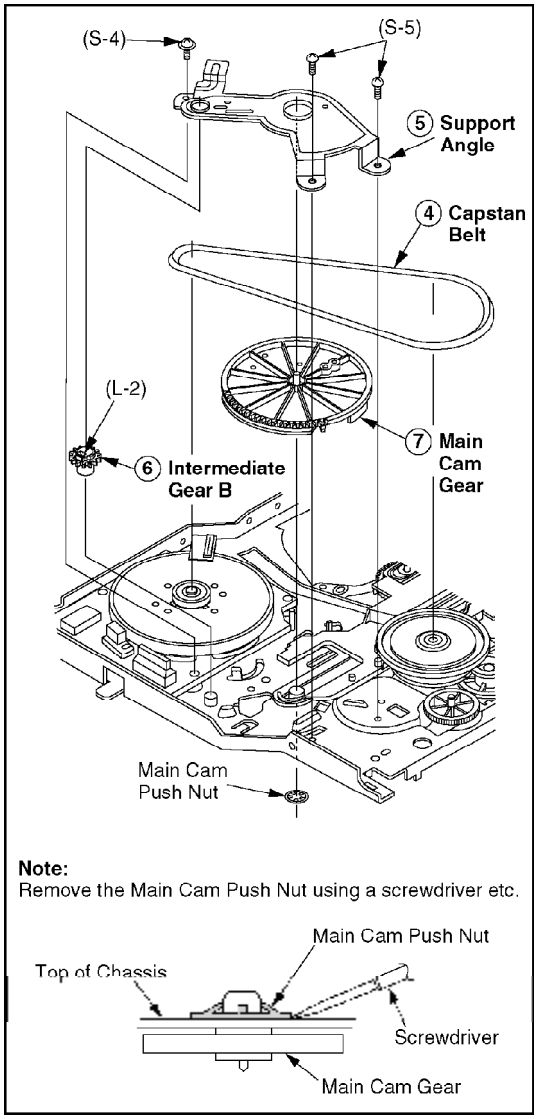
**Fig. J2-2**




**2. After replacing the Cylinder Unit, clear the Total lapsed time with Cylinder rotation (hour) to 0. Refer to "USAGE SCREEN MODE" in SERVICE NOTES.**

### 5.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear

**Fig. J3-1**




5.2.5.1. Reassembly Notes

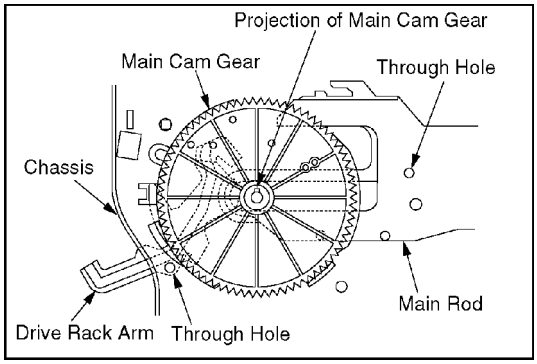
**1. Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod**

**A. Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.**

**B. Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.**

**C. Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.**

**Fig. J3-2**

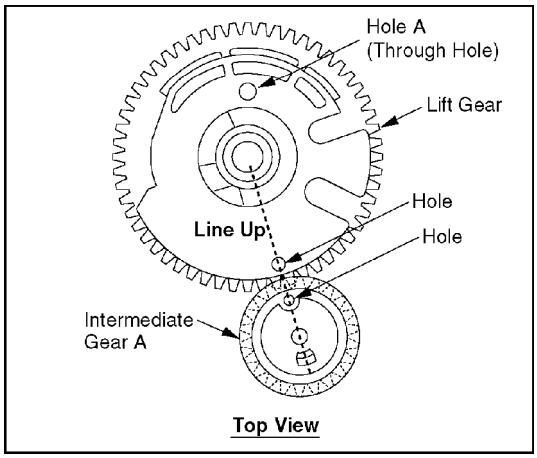



**2. Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A**

**A. Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.**

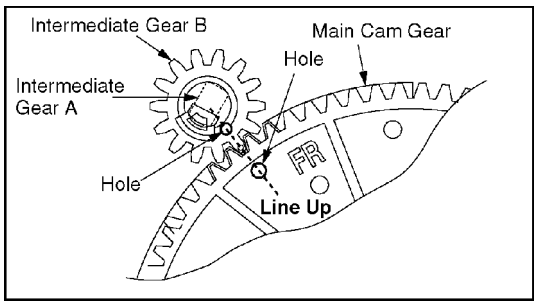
**B. Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.**

**Fig. J3-3**




**C. Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.**

**Fig. J3-4**

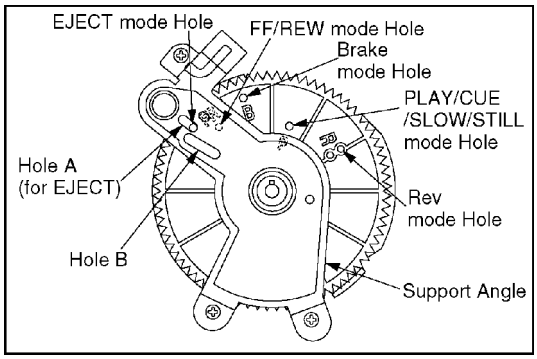



**3. Holes on Main Cam Gear**

**A. The EJECT mode Hole on Main Cam Gear should be a Through**

**Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on SupportAngle in each mode.**

**Fig. J3-5**




**4. Main Cam Gear Kit**

**A. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).**

**Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.**

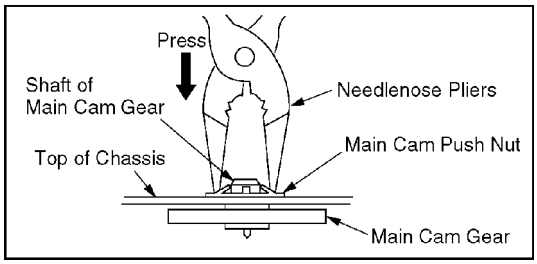
**However, Main Cam Push Nut is available separately as a replacement part.**

**5. Installation of Main Cam Gear and Main Cam Push Nut**

**A. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.**

**There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, installall new parts.**

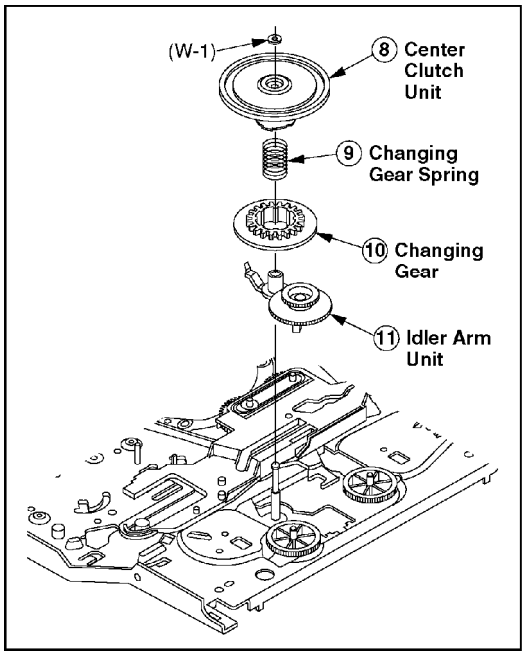
**Fig. J3-6**




**6. The Main Cam Push Nut is not reusable. Install a new one.**

### 5.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

**Fig. J4-1**

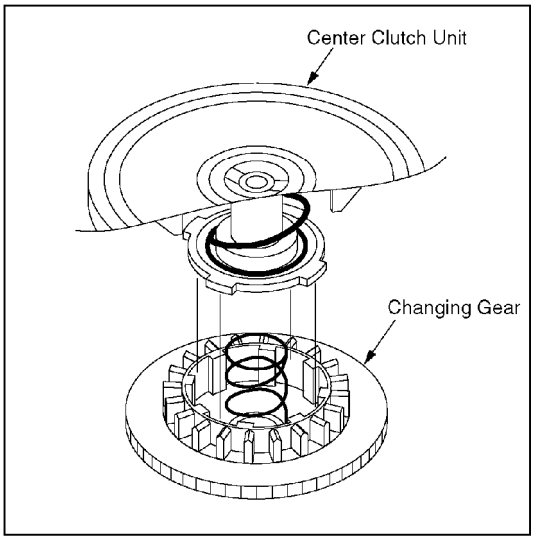



#### 5.2.6.1. Reassembly Notes

## 1. Installation of Center Clutch Unit

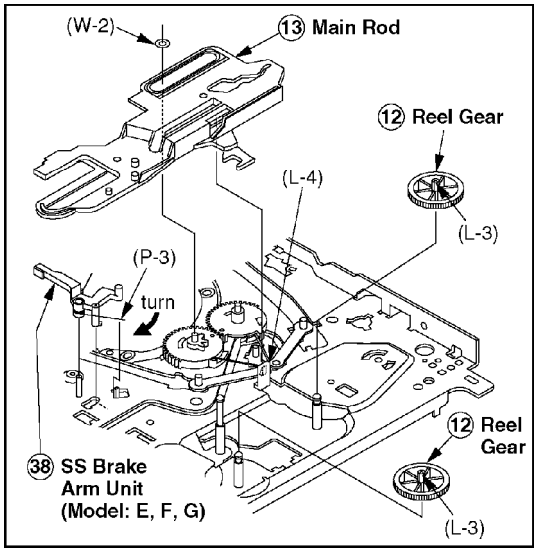
### A. Fit the Center Clutch Unit into the Changing Gear.

**Fig. J4-2**




## 5.2.7. Reel Gear, Main Rod, and SS Brake Arm Unit (Model: E, F, G)

**Fig. J5-1**

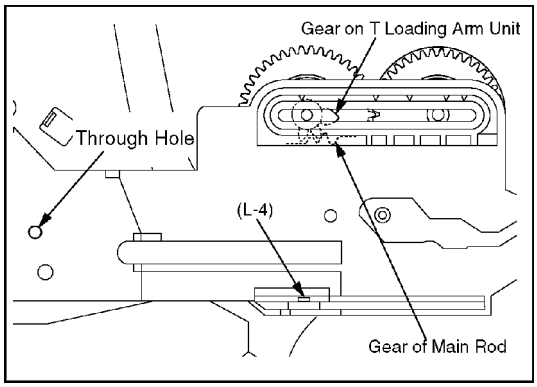



5.2.7.1. Reassembly Notes

**1. Alignment of Main Rod and T Loading Arm Unit**

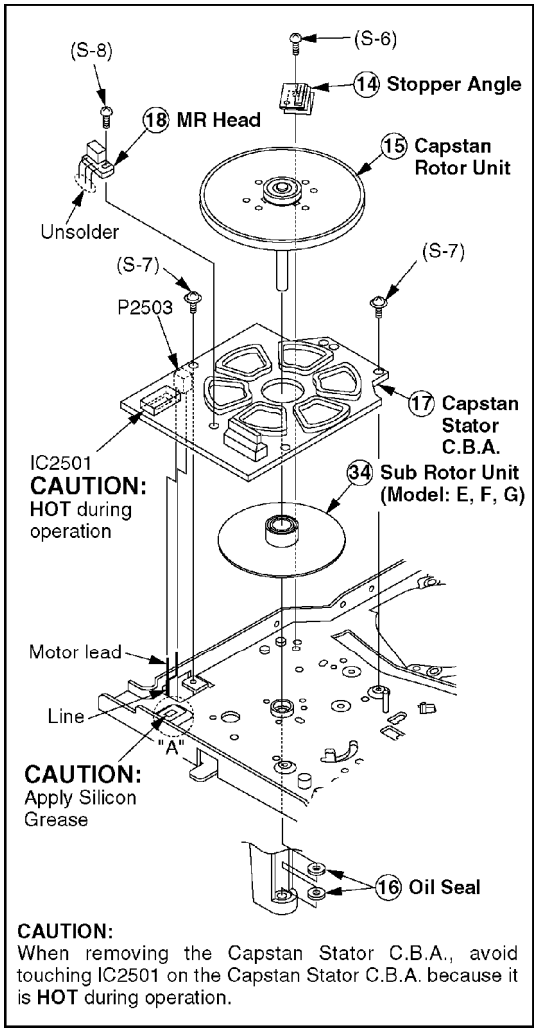
**A. Align the Gear of T Loading Arm Unit with Gear of Main Rod. Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.**

**Fig. J5-2**




## 5.2.8. Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., MR Head, and Sub Rotor Unit (Model: E, F, G)

**Fig. J6-1**



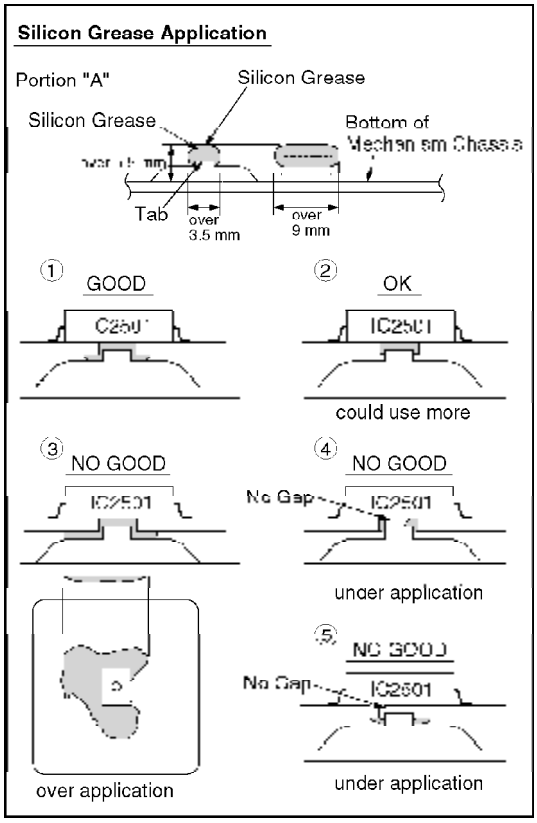

5.2.8.1. Reassembly Notes

## 1. Application of Silicon Grease

**CAUTION:**

**When installing the IC2501 (AN3845SC or AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.**

**Fig. J6-2**

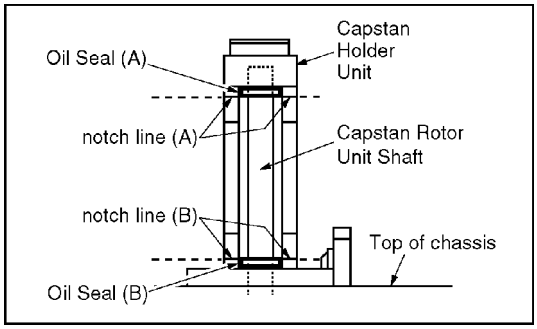



## 2. Installation of Capstan Rotor Unit and Oil Seal

**A. Install the 2 Oil Seals into the Capstan Holder Unit. Then, insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit so that shaft passes through 2 Oil Seals. Be carefulnot to scratch the Shaft or Capstan Holder Unit.**

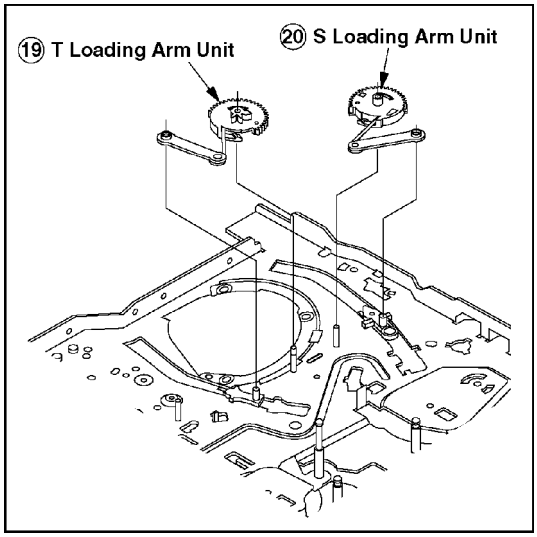
**B. Align the bottom of Oil Seal (A) with notch line (A). Align the top of Oil Seal (B) with notch line (B).**

**Fig. J6-3**




### 5.2.9. T Loading Arm Unit and S Loading Arm Unit

**Fig. J7-1**




### 5.2.9.1. Reassembly Notes

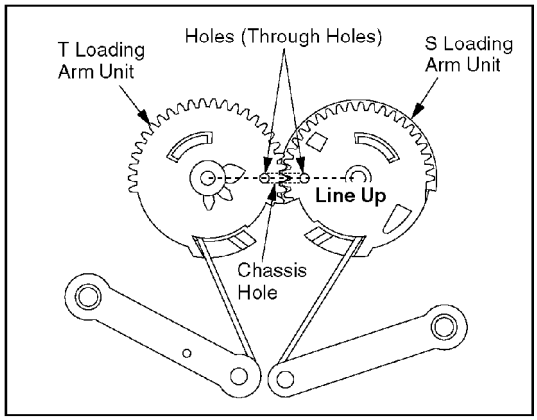
**1. Alignment of T Loading Arm Unit and S Loading Arm Unit**

**A. Install the S Loading Arm Unit onto the chassis.**

**B. Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.**

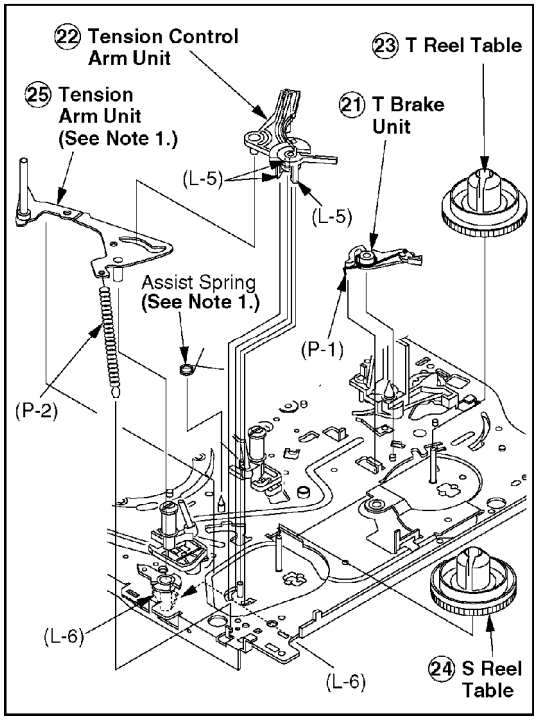
**C. Confirm that the holes on the S& T Loading Arm Unit are Through Holes with hole on chassis.**

**Fig. J7-2**




## 5.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

**Fig. J8-1**



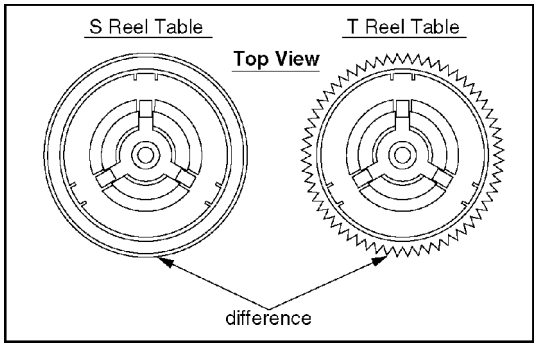

**Note:**

1. **Only for early products; the Assist Spring is used.**
   **When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.**

#### 5.2.10.1. Reassembly Notes

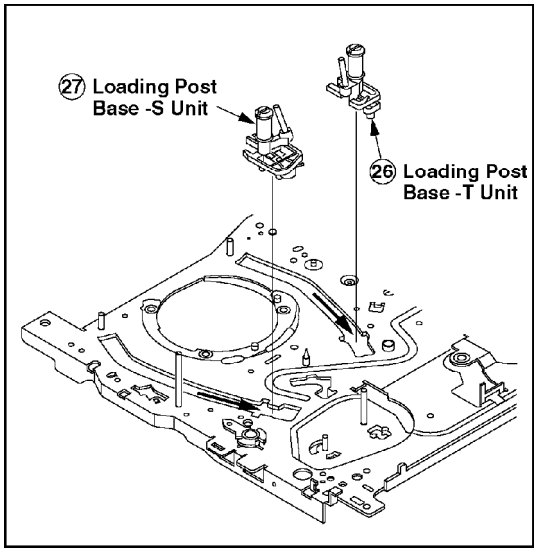
1. **How to distinguish between S Reel Table and T Reel Table**

**Fig. J8-2**



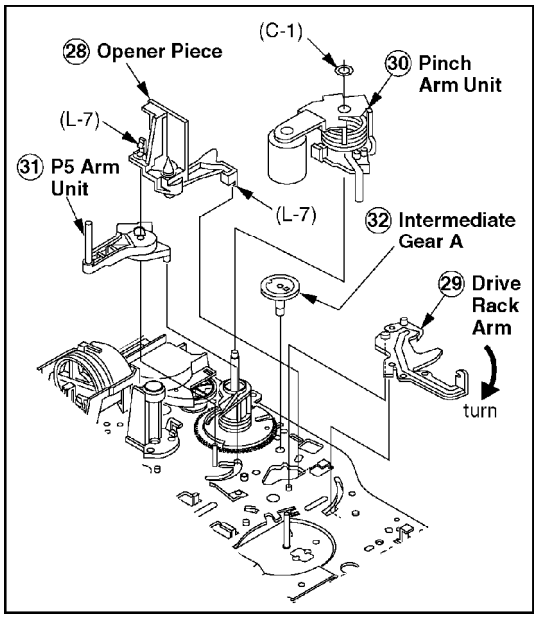

### 5.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

**Fig. J9**




## 5.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

**Fig. J10-1**




### 5.2.12.1. Reassembly Notes

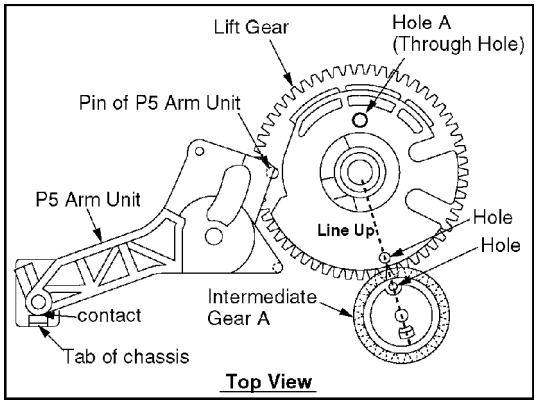
**1. Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit**

**A. Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.**

**B. Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.**

**C. Install the P5 Arm Unit so that it contacts with the tab of chassis.**

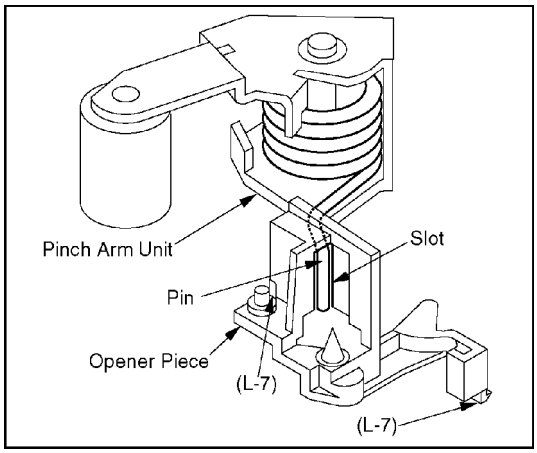
**Fig. J10-2**




## 2. Installation of Opener Piece

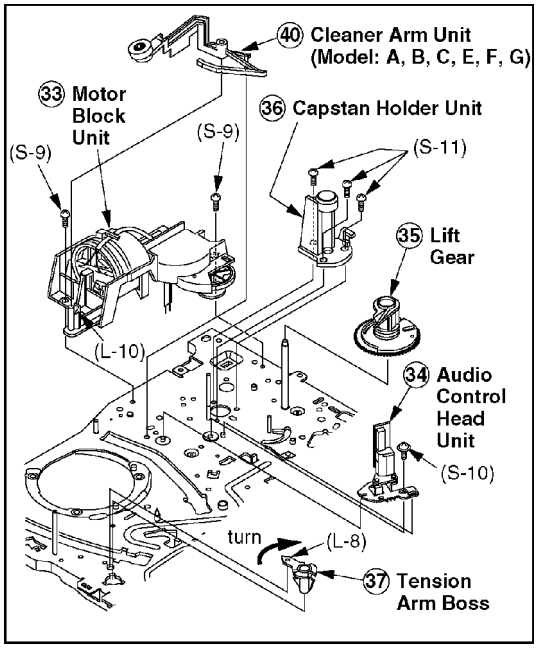
### A. Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit

**Fig. J10-3**




## 5.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear, Capstan Holder Unit, Tension Arm Boss, and Cleaner Arm Unit (Model: A, B, C, E, F, G)

**Fig. J11**




# 5.3. CASSETTE UP ASS'Y SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

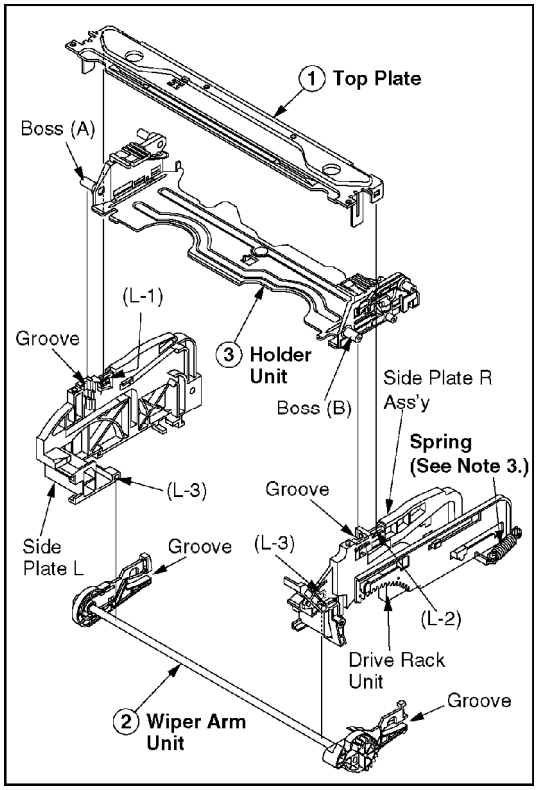
| Step/Loc. No. | Prior Step(s) | Part | Fig. No. | Remove | Alignment/Adjustment |
|---|---|---|---|---|---|
| ① | ---------- | Top Plate | K1-1 | (L-1), (L-2) | |
| ② | 1 | Wiper Arm Unit | K1-1 | 2(L-3) | Gear Alignment |
| ③ | 1,2 | Holder Unit | K1-1 | - | |
| ④ | ---------- | Opener Lever | K2 | 2(L-4) | |
| ⑤ | 1,2,3,4 | Drive Rack Unit | K2 | - | |
| | A | B C | D | E | F |

**How to read chart shown above:**

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)
F: Alignment/Adjustment which is required when installing or replacing each Parts.

## 5.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

**Fig. K1-1**



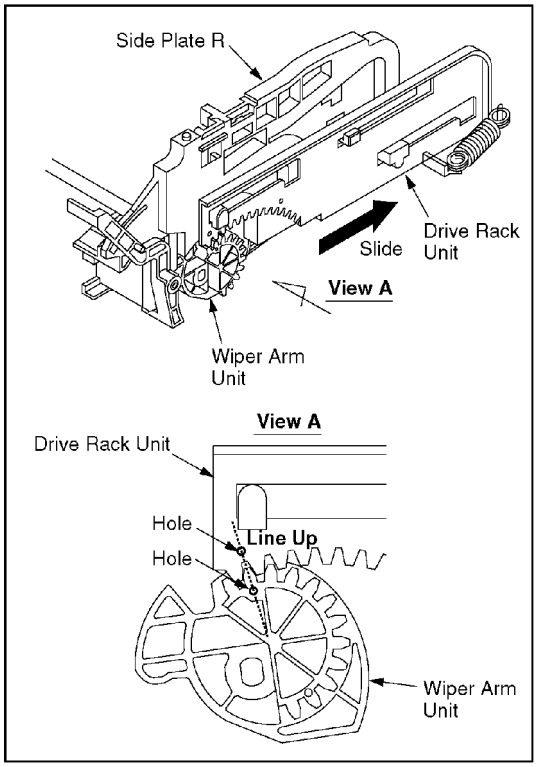

5.3.1.1. Reassembly Notes

**1. Alignment of Wiper Arm Unit and Drive Rack Unit**

**A. Slide the Drive Rack Unit to the far right as indicated by the arrow.**

**B. Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.**

**Fig. K1-2**



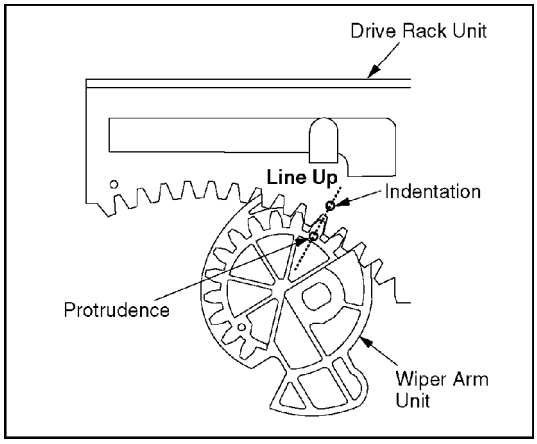

**2. Installation of Holder Unit**

**A. Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.**

**B. Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.**

**C. Finally, in the EJECTPosition, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.**

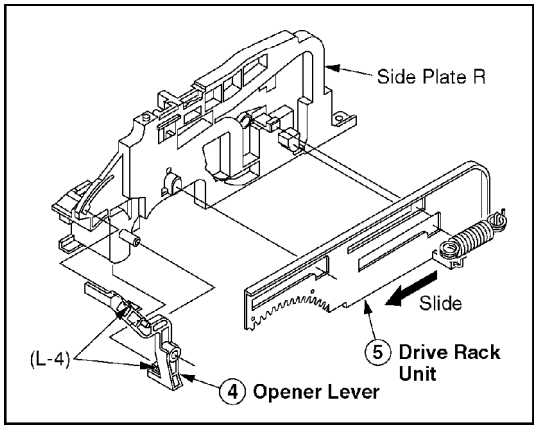
**Fig. K1-3**




**3. Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.**

### 5.3.2. Opener Lever and Drive Rack Unit

**Fig. K2**




# 6. ADJUSTMENT PROCEDURES

## 6.1. SERVICE FIXTURES AND TOOLS

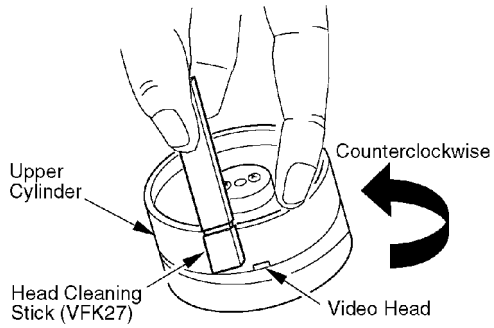
| | | |
|---|---|---|
| VFMS0003H6 VHS Alignment Tape<br>Video: Color Bar & Monoscope<br>Audio: 6kHz(MONO) | Back Tension Meter (Made in USA., Purchase Locally) | VFK27 Head Cleaning Stick |
| VFK1301 Silicon Grease | VFKS0081 Grease | VFK0329 Post Adjustment Driver |
| VFK0330 H-Position Adjustment Driver | | |

## 6.2. MECHANICAL ADJUSTMENT

### 6.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

**1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.**
**When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.**

Fig. M1




**Note:**

**A. Do not rub vertically or apply excess pressure to the Video Heads.**
**Do not turn the Upper Cylinder Unit clockwise while cleaning.**

**B. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.**

### 6.2.2. ADJUSTMENT PROCEDURES BACK TENSION CONFIRMATION

**Purpose:**

**To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.**

**Symptom of Misadjustment:**

**1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.**
**2) If the tape tension is too high, the tape will soon be damaged.**

**Equipment Required:**

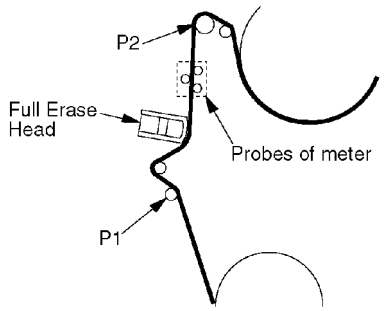
**Back Tension Meter (Made in U.S.A., Purchase Locally)**
**VHS Cassette Tape (120-Minute Tape)**

**Specification:**

**20 gf±2.5 gf**
**(0.196 N±0.025 N)**

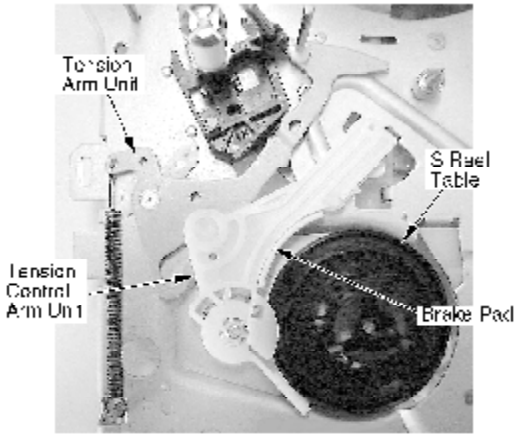
1. **Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.**
2. **Insert a Tension Meter into tape path and measure the back tension.**

Fig. M2-1




**3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.**
**After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.**

**Fig. M2-2**




**Note:**

**A. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.**

**B. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.**

#### 6.2.2.1. MR HEAD GAP ADJUSTMENT

**Purpose:**

**To properly pick up the FG Signal.**

**Symptom of Misadjustment:**

**If the FG Signal is not properly picked up, Servo Operation cannot**

be achieved.

**Equipment Required:**

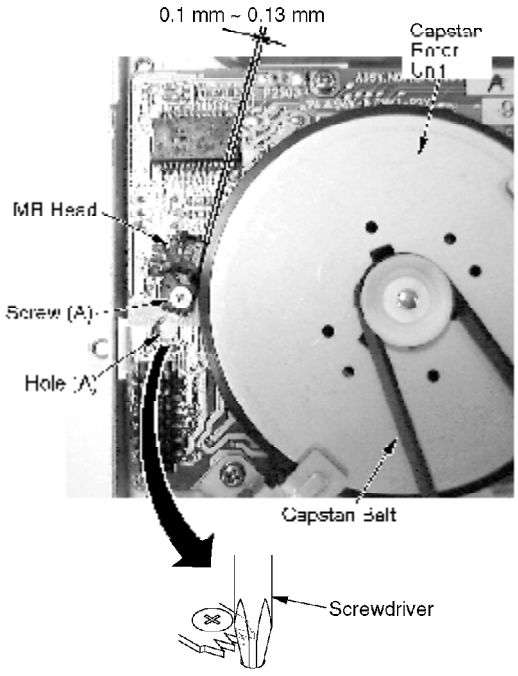
Oscilloscope

**Specification:**

0.1 mm ~ 0.13 mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the Main C.B.A.
3. Slightly loosen Screw (A). Then set the Screwdriver (Phillips Driver) into the Hole (A). Turn the screwdriver clockwise until the MR Head touches the rotor. Then turn it slightly counterclockwise to make theclearance as specified.
4. Tighten Screw (A).
5. Reinstall the Main C.B.A.

**Fig. M3-1**




**Note:**

**Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).**

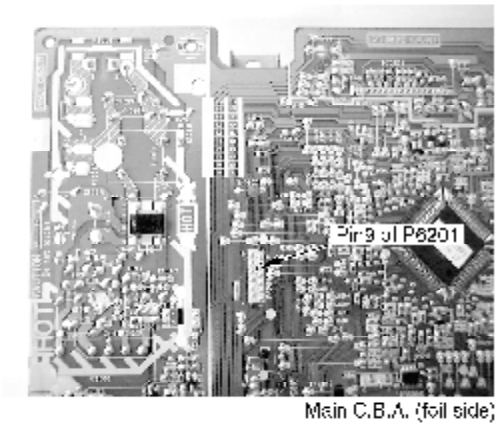
**Confirmation of Signal Level**

1. Place the unit in Service Position (2). Refer to "SERVICE POSITION

" in SERVICE NOTES.

2. Supply a Video Signal to the video input jack.
3. Insert a cassette tape and place the unit in SLP recording mode.
4. Connect the oscilloscope to Pin 9 of P6201 on the Main C.B.A. Confirm that the signal level is greater than 20 mV [P-P].

**Fig. M3-2**




Main C.B.A. (foil side)

### 6.2.2.2. TAPE INTERCHANGEABILITY ADJUSTMENT

**Note:**

**To perform these adjustment/confirmation procedures, enter the Tracking center mode.**

**Equipment Required:**

**Dual Trace Oscilloscope**
**VHS Alignment Tape (VFMS0003H6)**
**Post Adjustment Driver (VFK0329)**
**H-Position Adjustment Driver (VFK0330)**

#### 6.2.2.2.1. ENVELOPE OUTPUT ADJUSTMENT

**The height of the P2 and P3 Posts replacement part is preadjust at the factory.**

**Purpose:**

**To achieve a satisfactory picture and secure precise tracking.**

**Symptom of Misadjustment:**

**If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.**

**Equipment Required:**

**Post Adjustment Driver (VFK0329)**

1. **Insert the alignment tape.**
2. **Press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.**
   **The power comes on and the unit goes into service mode.**
3. **Play back the alignment tape.**
4. **To enter Tracking center mode, press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor.**
5. **Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.**
6. **Confirm that the RF envelope is flat enough (V1/V-max. is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat (V1/V-max.is 0.7 or more) as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.**

   **CAUTION:**

   **Overtightening P2 and P3 posts may cause the threads to strip.**

   **Note:**

   **It will be possible to confirm Step 6 according to following steps.**

   **A. Release the Tracking center mode.**

   **B. Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.**

**Fig. M4-1**

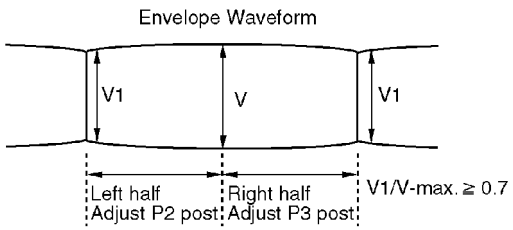
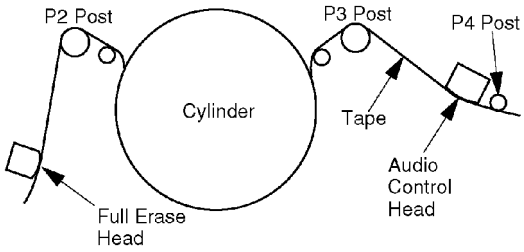
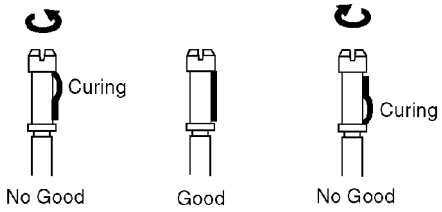



**Fig. M4-2**




**7. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.**

**Fig. M4-3**




**8. To release from Tracking center mode, press PLAY or STOP button.**

#### 6.2.2.2.2. AUDIO CONTROL HEAD TILT ADJUSTMENT

**Purpose:**

**To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.**

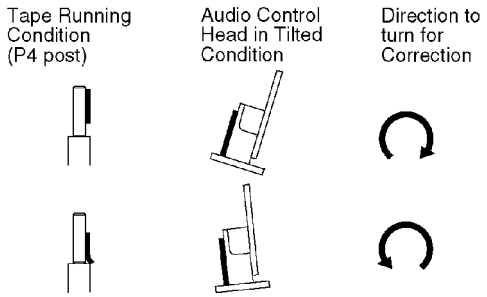
**Symptom of Misadjustment:**

**If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.**

**1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.**

**2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.**

**Fig. M5**




**6.2.2.2.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT**

**The height of the Audio Control Head replacement part is preset at the factory.**

## Purpose:

**To be sure the tape runs properly along the Control Head.**

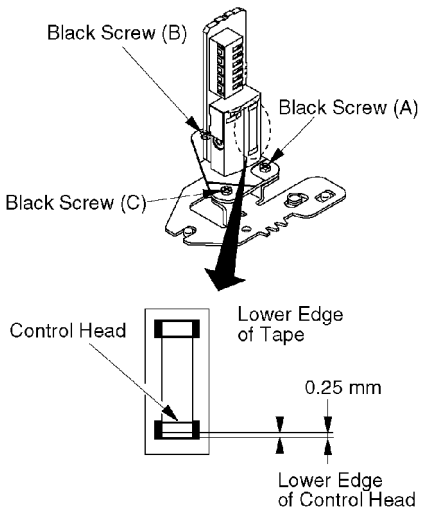
## Symptom of Misadjustment:

**If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.**

**This confirmation is required when the Audio Control Head is replaced.**

1. **Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.**
2. **If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.**

**Fig. M6**




**6.2.2.2.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT**

## Purpose:

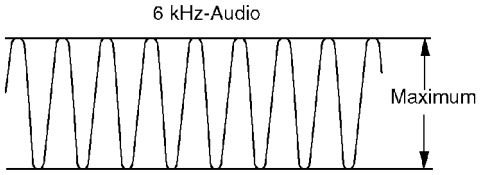
**To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.**

**Symptom of Misadjustment:**

**If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.**

1. **Connect the oscilloscope to the audio output jack on the rear side of the deck.**
2. **Play back the 6 kHz Monaural Audio portion of the alignment tape.**
3. **Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.**

**Fig. M7**




4. **Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).**

#### 6.2.2.2.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

**Purpose:**

**To adjust the Horizontal Position of the Audio Control Head.**

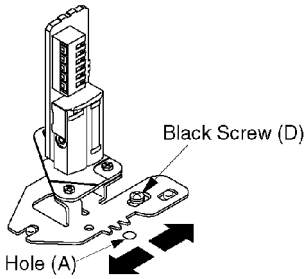
**Symptom of Misadjustment:**

**If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.**

1. **Insert the alignment tape.**
2. **Press and hold VCR/TV button and CH DOWN buttons on VCR together over 5 seconds in power off condition.**
   **The power comes on and the unit goes into service mode.**
3. **Play back the alignment tape.**
4. **To enter Tracking center mode, press PLAY button in Play back mode. "TRACKING CENTER" will be displayed on the TV monitor.**
5. **Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.**
6. **Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the**

fixture either clockwise or counterclockwise so that the envelope is at maximum.

**Fig. M8**




7. Tighten Black Screw (D).
8. To release from Tracking center mode, press PLAY or STOP button.

**Note:**

**Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.**

## 6.3. ELECTRICAL ADJUSTMENT

### 6.3.1. EVR (Electronic Variable Resister) ADJUSTMENT WITH THE REMOTE CONTROL

**This unit has electronic technology using I2C Bus concept.**
**The PG SHIFTER ADJUSTMENT is adjusted by using " On Screen Display " and the remote control instead of adjusting mechanical controls (VR).**

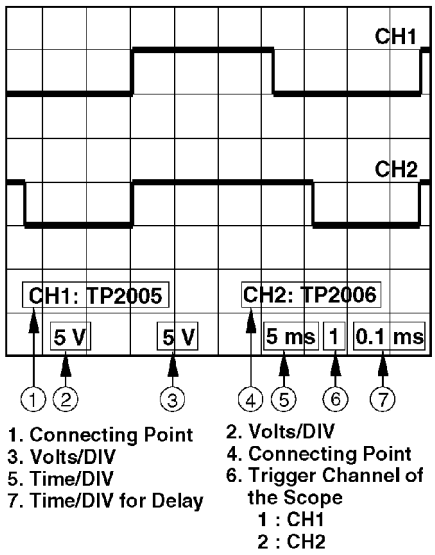
### 6.3.2. TEST EQUIPMENT

**To do all of these electrical adjustments, the following equipment is required.**

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. NTSC Video Pattern Generator
3. Plastic Tip Driver and Non-Metal Driver
4. Isolation Transformer (Variable)
5. VHS Alignment Tape (VFMS0003H6)
6. Blank Tape
7. TV monitor

### 6.3.3. HOW TO READ THE ADJUSTMENT PROCEDURES

**Fig. E1**




### 6.3.4. PG SHIFTER ADJUSTMENT

**Purpose:**

**Determine the Video Head Switching Point during Playback.**

**Symptom of Misadjustment:**

**May cause Head Switching Noise and/or Vertical Jitter.**

**Test Point:**

**TP3001 (Main C.B.A.),**
**TP6205 (Main C.B.A.)**

**Specification:**

**T= 6 H±0.5 H (0.38 ms±0.03 ms)**

**Mode:**

**SP Playback**

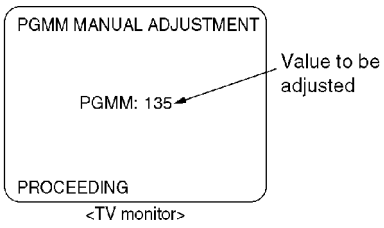
**Equipment:**

**Oscilloscope,**
**VHS Alignment Tape (VFMS0003H6),**
**TV monitor**

1. **Insert the VHS Alignment Tape and play back in SP mode.**
2. **Press VCR/TV button on the unit and 3 button on the remote control together to enter EVR PG SHIFTER ADJUSTMENT Mode. Then, "PGMM MANUAL ADJUSTMENT" menu will appear on the**

**TV monitor.**

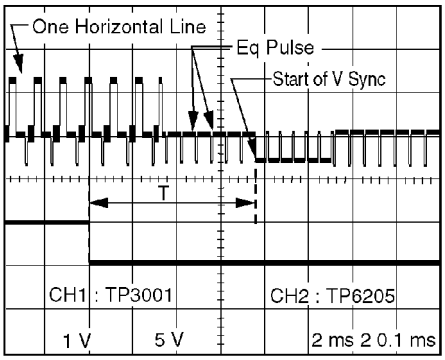
**Fig. E2-1**



<TV monitor>

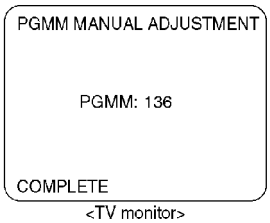
3. **Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Used TP6205 as a trigger.**
4. **Adjust value so that the trailing edge of the head switching pulse is placed 6 H±0.5 H (0.38 ms±0.03 ms) before the start of the vertical sync pulse by pressing CH UP and CH DOWN buttonson the remote control.**

**Fig. E2-2**




5. **After adjustment is completed, press REC button on the remote control. Then " COMPLETE " will appear on the TV monitor and adjusted value will be written to Memory IC (IC6005).**

**Fig. E2-3**



<TV monitor>

6. **Press STOP button on the remote control to release from EVR PG SHIFTER ADJUSTMENT MODE.**

### 6.3.5. CHROMINANCE NOISE REDUCTION ADJUSTMENT (CNR) (Model: G)

**Purpose:**

**To improve the Playback Chroma S/N.**

**Symptom of Misadjustment:**

**Playback interchangeability is inadequate.**

**Test Point:**

**TP3004 (Main C.B.A.)**

**Adjustment:**

**R3204, R3205 (Main C.B.A.)**

**Specification:**

**Less than 50 mV[p-p]**

**Input:**

**Video Input Jack**
**NTSC Color Bar (W/WHITE WINDOW)**

**Mode:**

**SP self recording and playback**

**Equipment:**

**Oscilloscope,**
**NTSC Video Pattern Generator,**
**Blank Tape**

1. **Supply NTSC Color Bar Signal to the Video Input Jack and make a recording in SP mode.**
2. **Playback the recording and adjust R3204 (CNR PHASE) and R3205 (CNR GAIN) alternately so that the Chroma Signal at TP3004 is at minimum.**
3. **Make sure that the Chroma Signal at TP3004 is less than 50 mV[p-p].**

**Fig. E3-1 (before adjustment)**

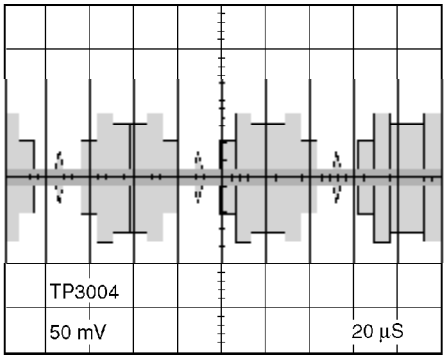
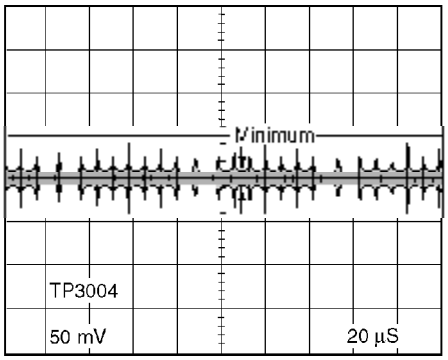
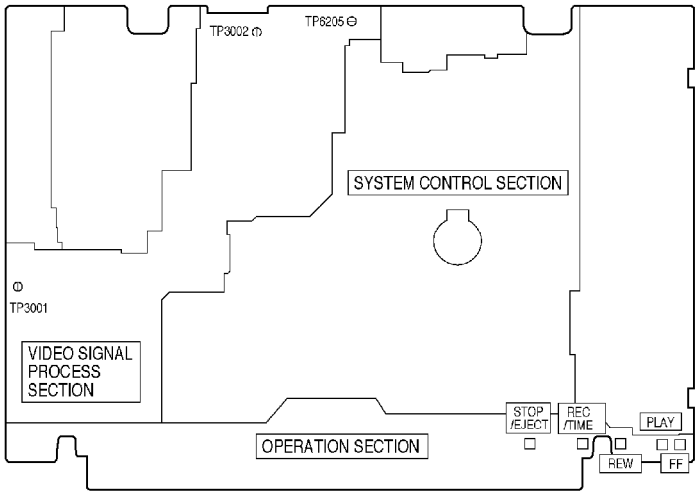


**Fig. E3-2 (after adjustment)**



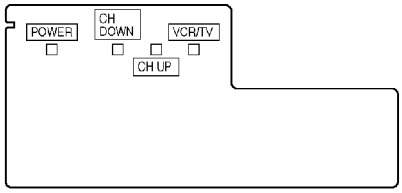

## 6.4. TEST POINTS AND CONTROL LOCATION

**Main C.B.A. ( A, B, C, D )**




(Component Side)

**Operation C.B.A.**



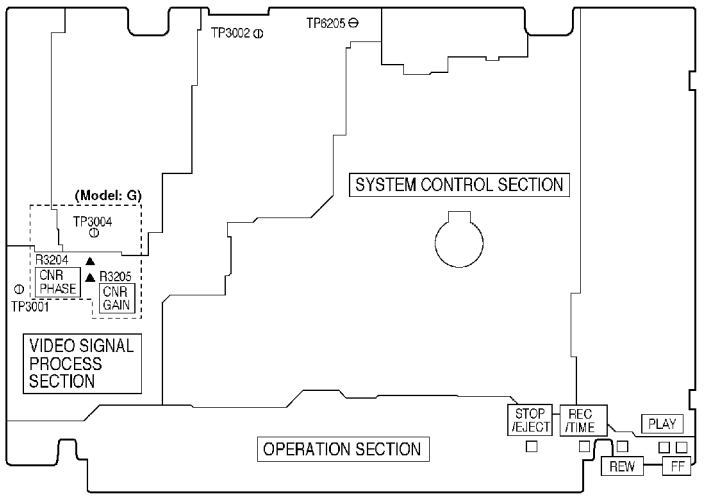

(Component Side)

| FUNCTION OF IMPORTANT TEST POINTS | |
|---|---|
| TP3001 | Video Signal to Jack |
| TP3002 | REC/PB Video envelope signal |
| TP3004 | CNR Signal **(Model: G)** |
| TP6205 | Head SW. |

**Test Point Information**

Ⓘ Test Point with a jumper wire across a hole in the P.C.B.

Main C.B.A. ( E, F, G )




(Component Side)

# 7. SCHEMATIC DIAGRAMS

## 7.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

## 7.2. MAIN I (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM

## 7.3. MAIN II (SIGNAL PROCESS/AUDIO) SCHEMATIC DIAGRAM

## 7.4. MAIN III (POWER SUPPLY) SCHEMATIC DIAGRAM

## 7.5. MAIN IV (Hi-Fi) SCHEMATIC DIAGRAM

## 7.6. MAIN V (OPERATION) SCHEMATIC DIAGRAM

## 7.7. MAIN VI (CYLINDER DRIVE/ADVANCE) SCHEMATIC DIAGRAM

## 7.8. OPERATION SCHEMATIC DIAGRAM

## 7.9. Hi-Fi AUDIO/VIDEO HEAD AMP/ AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

## 7.10. CAPSTAN STATOR SCHEMATIC DIAGRAM

## 7.11. INTERCONNECTION SCHEMATIC DIAGRAM

## 7.12. SIGNAL WAVEFORM

## 7.13. VOLTAGE CHART

# 8. CIRCUIT BOARD LAYOUT

8.1. MAIN C.B.A. (A, B, C, D)

8.2. MAIN C.B.A. (E, F, G)

8.3. OPERATION C.B.A./ Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A./ CAPSTAN STATOR/ AUDIO CONTROL HEAD P.C.B.

9. BLOCK DIAGRAMS

9.1. POWER SUPPLY BLOCK DIAGRAM

9.2. VIDEO SIGNAL PATH BLOCK DIAGRAM

9.3. AUDIO SIGNAL PATH BLOCK DIAGRAM

9.4. Hi-Fi AUDIO SIGNAL PATH BLOCK DIAGRAM

9.5. SYSTEM CONTROL BLOCK DIAGRAM

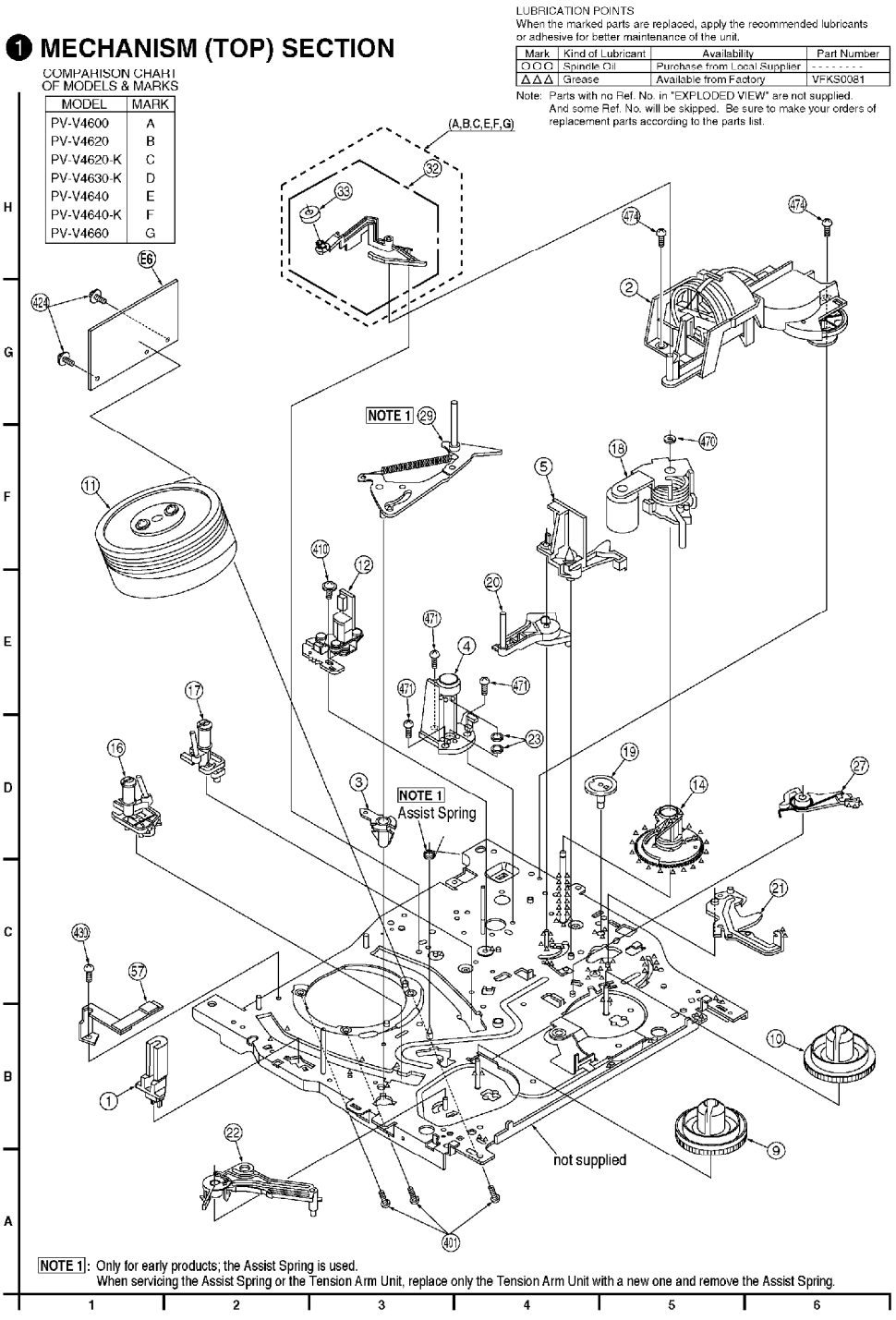
9.6. SERVO BLOCK DIAGRAM

9.7. OPERATION BLOCK DIAGRAM

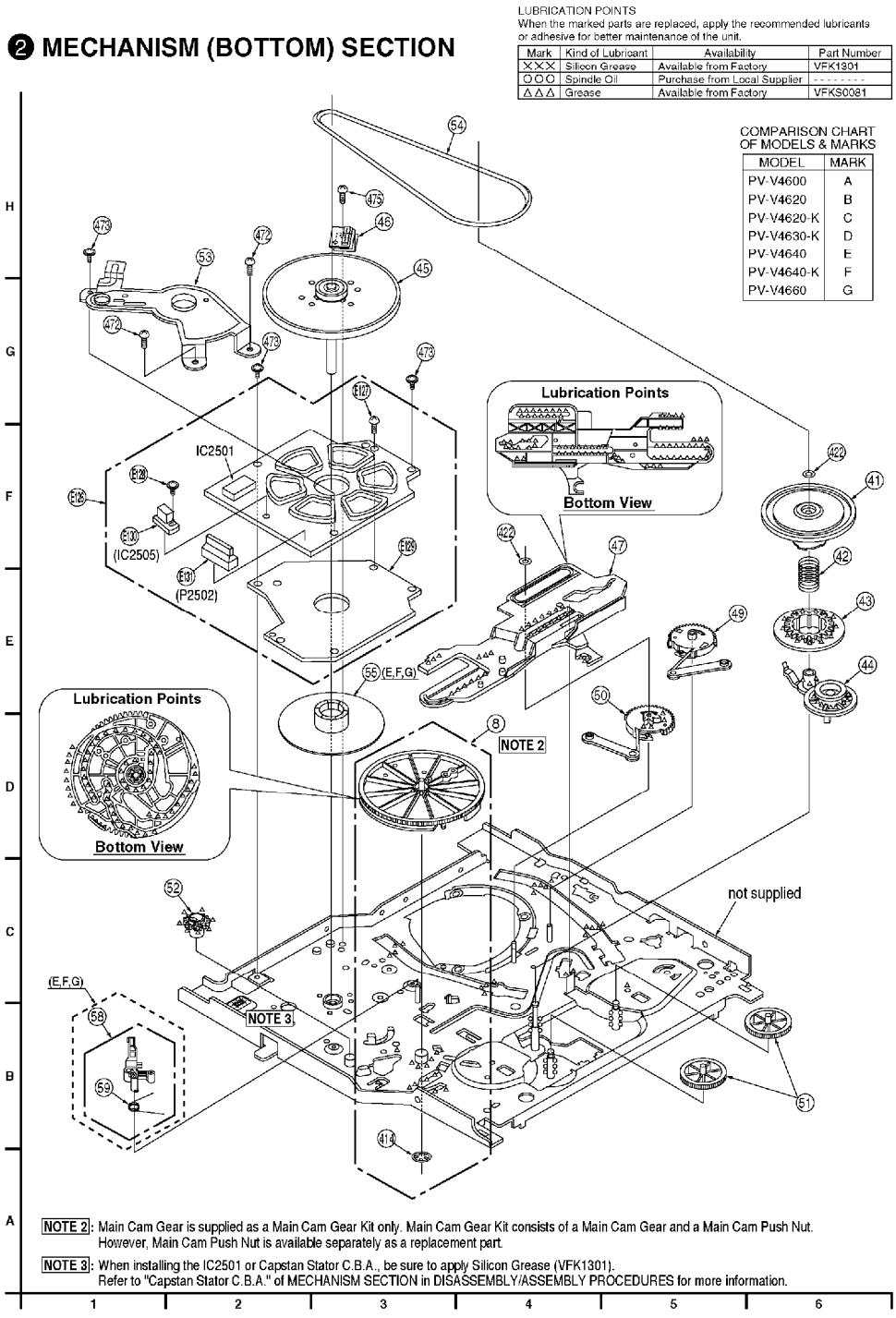
9.8. ADVANCE BLOCK DIAGRAM

10. EXPLODED VIEWS

10.1. MECHANISM (TOP) SECTION


❶ MECHANISM (TOP) SECTION
COMPARISON CHART OF MODELS & MARKS
MODEL | MARK
PV-V4600 | A
PV-V4620 | B
PV-V4620-K | C
PV-V4630-K | D
PV-V4640 | E
PV-V4640-K | F
PV-V4660 | G
LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.
Mark | Kind of Lubricant | Availability | Part Number
○○○ | Spindle Oil | Purchase from Local Supplier | - - - - - -
△△△ | Grease | Available from Factory | VFKS0081
Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
(A,B,C,E,F,G)
E6
NOTE 1
Assist Spring
not supplied
NOTE 1: Only for early products; the Assist Spring is used.
When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.

## 10.2. MECHANISM (BOTTOM) SECTION

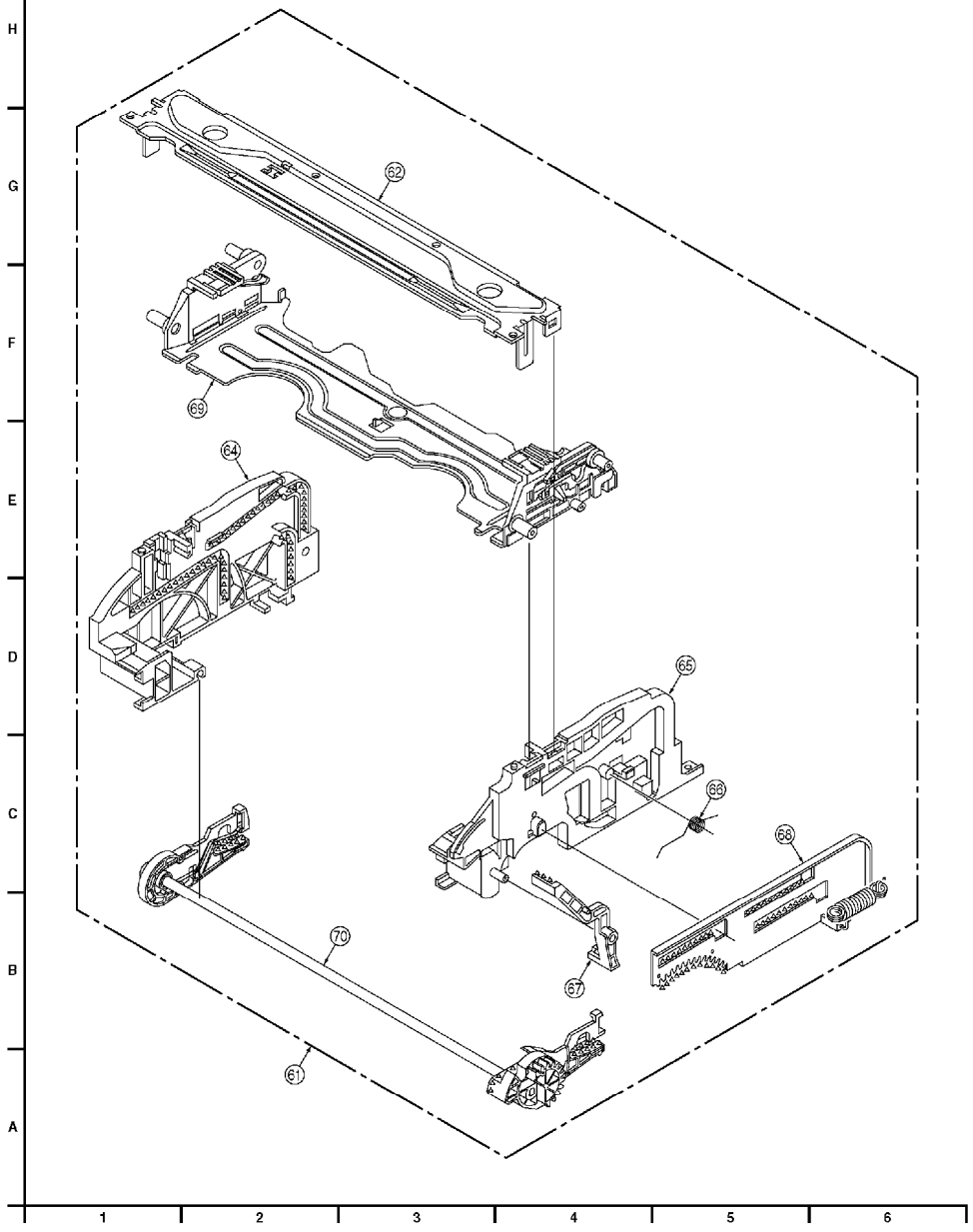

❷ MECHANISM (BOTTOM) SECTION
LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.
Mark | Kind of Lubricant | Availability | Part Number
XXX | Silicon Grease | Available from Factory | VFK1301
OOO | Spindle Oil | Purchase from Local Supplier | - - - - - - - -
ΔΔΔ | Grease | Available from Factory | VFKS0081
COMPARISON CHART OF MODELS & MARKS
MODEL | MARK
PV-V4600 | A
PV-V4620 | B
PV-V4620-K | C
PV-V4630-K | D
PV-V4640 | E
PV-V4640-K | F
PV-V4660 | G
Lubrication Points
Bottom View
IC2501
(IC2505)
(P2502)
NOTE 2
NOTE 3
not supplied
NOTE 2: Main Cam Gear is supplied as a Main Cam Gear Kit only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.
NOTE 3: When installing the IC2501 or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES for more information.

## 10.3. CASSETTE UP COMPARTMENT SECTION

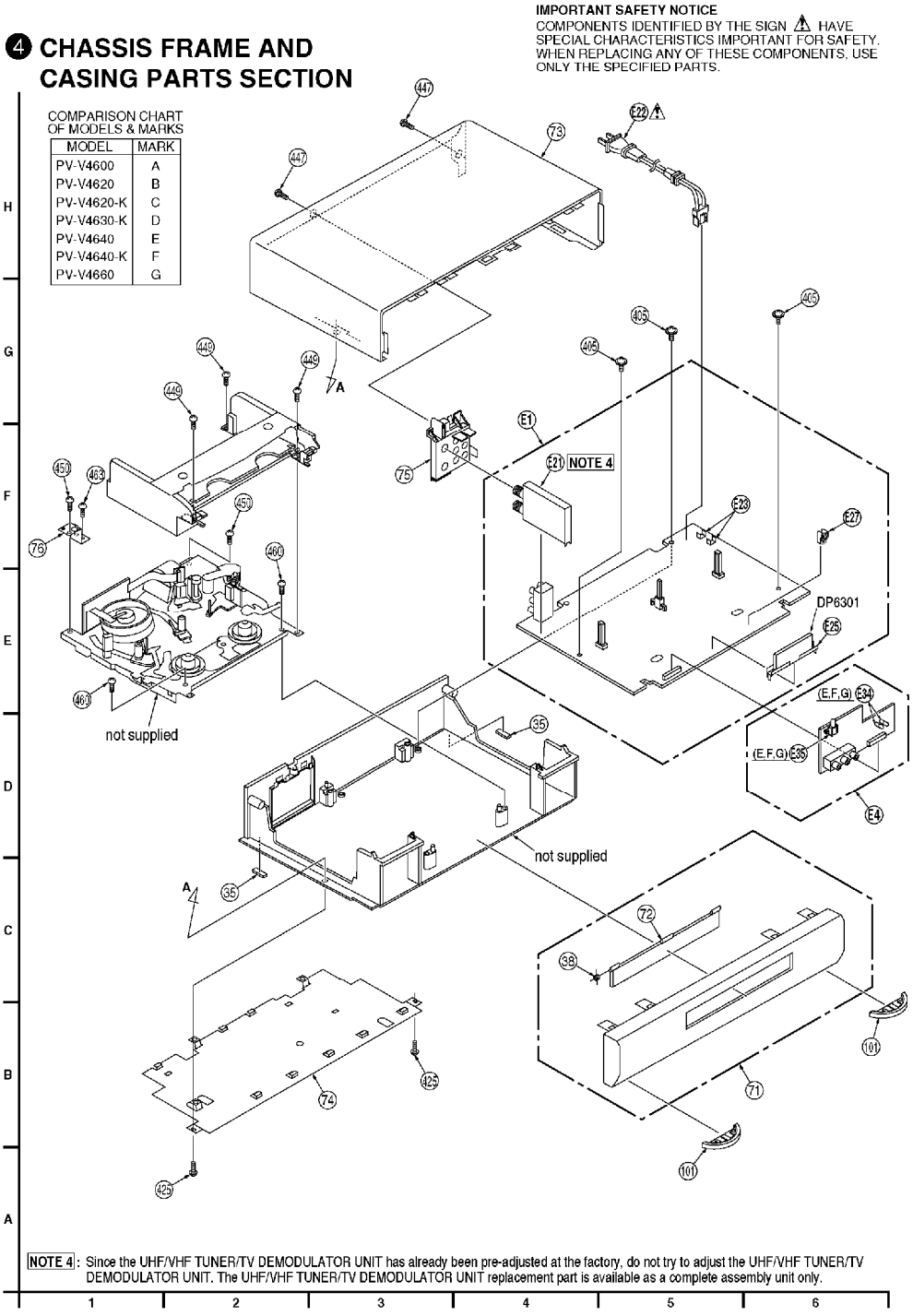
LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

| Mark | Kind of Lubricant | Availability | Part Number |
|---|---|---|---|
| △△△ | Grease | Available from Factory | VFKS0081 |

## ❸ CASSETTE UP COMPARTMENT SECTION

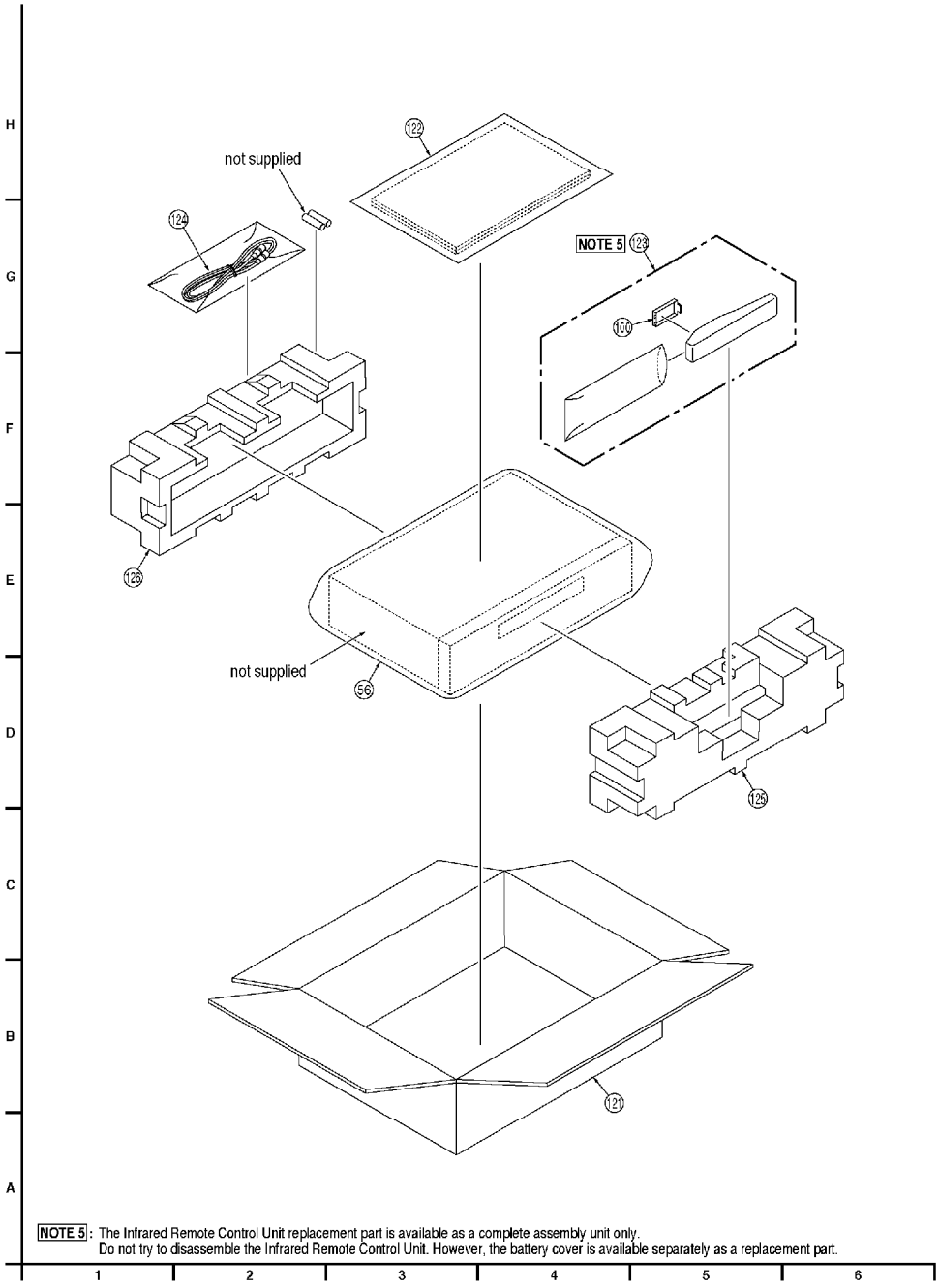



# 10.4. CHASSIS FRAME AND CASING PARTS SECTION


IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.
4 CHASSIS FRAME AND CASING PARTS SECTION
COMPARISON CHART OF MODELS & MARKS
MODEL | MARK
PV-V4600 | A
PV-V4620 | B
PV-V4620-K | C
PV-V4630-K | D
PV-V4640 | E
PV-V4640-K | F
PV-V4660 | G
NOTE 4
DP6301
not supplied
not supplied
NOTE 4 : Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

## 10.5. PACKING PARTS AND ACCESSORIES SECTION

## ❺ PACKING PARTS AND ACCESSORIES SECTION


not supplied
122
124
NOTE 5
123
100
not supplied
56
126
125
121
NOTE 5 : The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

# 11. REPLACEMENT PARTS LISTS

**BEFORE REPLACING PARTS, READ THE FOLLOWING:**

## 11.1. REPLACEMENT NOTES

### 11.1.1. General Notes

### 1. Use only original replacement parts:

**To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.**

2. **IMPORTANT SAFETY NOTICE**
   **Components identified by the sign⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.**
3. **SPECIAL NOTE**
   **All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this servicemanual.**
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Parts with mark "MKA" in Remarks column are supplied from MKA. Others are supplied from MKE.**

### 11.1.2. Mechanical Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacementpart.**
3. **The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is availableseparately as a replacement part.**
4. **Cut Washer (Ref. No. 470) is not reusable.**
   **If removed, install a new one.**

5. **Main Cam Push Nut (Ref. No. 414) is not reusable.**
   **If removed, install a new one.**

### 11.1.3. Electrical Replacement Notes

1. **Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views.**
2. **The parts with " ■ " mark are supplied as a unit, and their individual parts are also supplied separately.**
3. **Unless otherwise specified;**
   **All resistors are in Ω , 1/4 W,±5%, carbon, K= 1,000 Ω ,**
   **M= 1,000 k Ω .**
   **All capacitors are in μ F, P= μ μ F,±10%.**
   **All coils are in μ H, M= 1,000 μ H,±10%.**
4. **Abbreviation**
   **RTL: Retention Time Limited**
   **This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.**
   **NR: Non Repairable Board Ass'y**
   **MGF CHIP: Metal Glaze Film Chip**
   **C CHIP: Ceramic Chip**
   **COMPLX CMP: Complex Component**
   **W FLMPRF: Wirewound Flameproof**
   **C.B.A.: Circuit Board Assembly**
   **P.C.B.: Printed Circuit Board**
   **E.S.D.: Electrostatically Sensitive Devices**
5. **SERVICE OF CHIP PARTS**
   **When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.**
6. **The parts with " ● " are 0 Ω resistor. When replacing, a wire can be substituted for a 0 Ω resistor.**
7. **Capstan Stator C.B.A. replacement note:**
   **The following parts on the Capstan Stator C.B.A. (VEMS0331 and VEMS0333) are not supplied separately. Please order and replace**

**with the circuit board assembly instead of individual parts. (Q2501, Q2502, Q2503, Capstan Coil)**

8. **When installing the IC2501 (AN3845SC or AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., MR Head, and Sub Rotor Unit (Model: E, F, G)"of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.**
9. **Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. E21) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATORUNIT replacement part is available as a complete assembly unit only.**
10. **EEPROM IC (IC6005), Main C.B.A. replacement note:**
    **After replacing EEPROM IC (IC6005) or Main C.B.A., be sure to perform the "PG SHIFTER ADJUSTMENT" in ELECTRICAL ADJUSTMENT procedures.**

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |

## 11.2. MECHANICAL REPLACEMENT PARTS LIST

### 11.2.1. MECHANISM PARTS ON CHASSIS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| 1 | VBSS0033 | FULL ERASE HEAD | 1 |
| 2 | VXKS0890 | MOTOR BLOCK UNIT | 1 |
| 3 | LSDB0045 | TENSION ARM BOSS | 1 |
| 4 | VXDS0212 | CAPSTAN HOLDER UNIT | 1 |
| 5 | LSMD0209 | OPENER PIECE | 1 |
| 8 | VVGS0009 | MAIN CAMGEAR KIT | 2 |
| 9 | | S REEL TABLE | |
| | LSDR0004 | ( A,B,C,D ) | 1 |
| | OR LSDR0002 | | |
| | LSDR0004 | ( E,F,G ) | 1 |
| 10 | | T REEL TABLE | |
| | LSDR0005 | ( A,B,C,D ) | 1 |
| | OR LSDR0003 | | |
| | LSDR0005 | ( E,F,G ) | 1 |
| 11 | | CYLINDER UNIT | |
| | VEGS0429 | ( A,B,C,D ) | 1 |
| | VEGS0451 | ( E,F ) | 1 |
| | VEGS0435 | ( G ) | 1 |
| 12 | VEHS0583 | AUDIO CONTROL/ERASE HEAD UNIT | 1 |
| 14 | LSDG0112 | LIFT GEAR | 1 |
| 16 | VXDS0213 | LOADING POST BASE-S UNIT | 1 |
| 17 | VXDS0214 | LOADING POST BASE-T UNIT | 1 |
| 18 | VXLS1094 | PINCH ARM UNIT | 1 |
| 19 | LSDG0110 | INTERMEDIATE GEAR A | 1 |
| 20 | VXLS1101 | P5 ARM UNIT | 1 |
| 21 | LSML0131 | DRIVE RACK ARM | 1 |
| 22 | | TENSION CONTROL ARM UNIT | |
| | VXLS1103 | ( A,B,C,D ) | 1 |
| | VXLS1127 | ( E,F,G ) | 1 |
| 23 | LSMX0129 | OIL SEAL | 1 |
| 24 | | REGULATOR ANGLE | |
| | LSMA0434 | ( E,F,G ) | 1 |
| 27 | | T BRAKE UNIT | |
| | VXLS1100 | ( A,B,C,D ) | 1 |
| | VXLS1130 | ( E,F,G ) | 1 |
| 29 | | TENSION ARM UNIT | |
| | VXLS1102 | ( A,B,C,D ) | 1 |
| | VXLS1129 | ( E,F,G ) | 1 |
| 32 | | CLEANER ARM UNIT | |
| | VXLS1104 | ( A,B,C,E,F,G ) | 1 |
| 33 | | CLEANER ROLLER | |
| | VDPS0269 | ( A,B,C,E,F,G ) | 1 |
| 35 | | RUBBER FOOT | |
| | LSKA0012 | ( A,B,C,D ) | 4 |
| 36 | | RUBBER FOOT | |
| | VKAS0060 | ( E,F,G ) | 4 |
| 38 | LSMB0217 | CASSETTE DOOR SPRING | 4 |
| 41 | VXPS0389 | CENTER CLUTCH UNIT | 2 |
| 42 | VMBS1151 | CHANGINGGEAR SPRING | 2 |
| 43 | | CHANGING GEAR | |
| | LSDG0114 | ( A,B,C,D ) | 2 |
| | VXDS0218 | ( E,F,G ) | 2 |
| 44 | | IDLER ARM UNIT | |
| | VXLS1091 | ( A,B,C,D ) | 2 |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| | VXLS1126 | ( E,F,G ) | 2 |
| 45 | | CAPSTAN ROTOR UNIT | |
| | VXPS0391 | ( A,B,C,D ) | 2 |
| | VXPS0393 | ( E,F,G ) | 2 |
| 46 | LSMA0387 | STOPPER ANGLE | 2 |
| 47 | LSMM0002 | MAIN ROD | 2 |
| 49 | VXLS1099 | S LOADING ARM UNIT | 2 |
| 50 | VXLS1098 | T LOADINGARM UNIT | 2 |
| 51 | | REEL GEAR | |
| | LSDG0116 | ( A,B,C,D ) | 2 |
| | VXDS0217 | ( E,F,G ) | 2 |
| 52 | LSDG0111 | INTERMEDIATE GEAR B | 2 |
| 53 | LSMA0423 | SUPPORT ANGLE | 2 |
| 54 | | CAPSTAN BELT SQUARE,RUBBER 2MM | |
| | LSDV0007 | ( A,B,C,D ) | 2 |
| | LSDV0008 | ( E,F,G ) | 2 |
| 55 | | SUB ROTOR UNIT | |
| | VXPS0392 | ( E,F,G ) | 2 |
| 56 | VPFS0057 | SHEET,POLYETHYLENE | 5 |
| 57 | LSSA0003 | GROUNDING PLATE UNIT | 1 |
| 58 | | SS BRAKE ARM UNIT | |
| | VXLS1105 | ( E,F,G ) | 2 |
| 59 | | SS BRAKE SPRING | |
| | LSMB0196 | ( E,F,G ) | 2 |
| 61 | VXYS1347 | CASSETTE UP ASS'Y | 3 |
| 62 | LSMA0352 | TOP PLATE | 3 |
| 64 | LSMD0174 | SIDE PLATE L | 3 |
| 65 | LSMD0173 | SIDE PLATE R | 3 |
| 66 | LSMB0218 | SUPPORT SPRING | 3 |
| 67 | LSML0096 | OPENER LEVER | 3 |
| 68 | VXLS1111 | DRIVE RACK UNIT | 3 |
| 69 | VXAS4423 | HOLDER UNIT | 3 |
| 70 | VXLS1110 | WIPER ARM UNIT | 3 |
| 71 | | FRONT PANEL ASS'Y | |
| | VYPS7069 | ( A ) | 4 |
| | VYPS7049 | ( B,C,D ) | 4 |
| | VYPS7050 | ( E,F ) | 4 |
| | VYPS7051 | ( G ) | 4 |
| 72 | | CASSETTE DOOR-LID UNIT | |
| | VYPS7057 | ( A,B,C,D ) | 4 |
| | VYPS7058 | ( E,F ) | 4 |
| | VYPS7059 | ( G ) | 4 |
| 73 | | TOP COVER | |
| | LSKM0336 | ( A,B,C,D,E,F ) | 4 |
| | LSKM0339 | ( G ) | 4 |
| 74 | LSKU0012 | BOTTOM PANEL | 4 |
| 75 | LSGP0182 | REAR PANEL | 4 |
| 76 | LSSC0332 | CHASSIS ANGLE | 4 |
| 100 | | BATTERY COVER | |
| | LSKF0310 | ( A,D,E,F,G ) | 5 |
| | VKFS2235 | ( B,C ) | 5 |
| 101 | LSKA0011 | FOOT | 4 |
| 121 | | PACKING CASE,PAPER | |
| | LSPG0806 | ( A ) | 5 |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| | LSPG0717 | ( B ) | 5 |
| | LSPG0817 | ( C ) | 5 |
| | LSPG0818 | ( D ) | 5 |
| | LSPG0718 | ( E ) | 5 |
| | LSPG0819 | ( F ) | 5 |
| | LSPG0719 | ( G ) | 5 |
| 122 | | FAN BAG | |
| | LSQF0244 | ( A ) | 5 |
| | LSQF0193 | ( B ) | 5 |
| | LSQF0233 | ( C ) | 5 |
| | LSQF0237 | ( D ) | 5 |
| | LSQF0194 | ( E,G ) | 5 |
| | LSQF0238 | ( F ) | 5 |
| 123 | | INFRARED REMOTE CONTROL UNIT | |
| | LSSQ0231 | ( A ) | 5 |
| | LSSQ0204 | ( B,C ) | 5 |
| | LSSQ0237 | ( D ) | 5 |
| | LSSQ0218 | ( E,F,G ) | 5 |
| 124 | VJAS0212 | VHF CONNECTING CABLE W/PLUG | 5 |
| 125 | LSPN0169 | FRONT CUSHION,STYROFOAM | 5 |
| 126 | LSPN0152 | REAR CUSHION,STYROFOAM | 5 |
| 254 | | CUSHION, PLASTIC | |
| | LSGQ0028 | ( E,F,G ) | 4 |
| 256 | | SHEET, NYLON+RAYON | |
| | TMK76739 | ( E,F,G ) | 4 |

## 11.2.2. SCREWS AND WASHERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| 401 | VHDS0475 | SCREW,STEEL | 1 |
| 405 | VHDS0496 | SCREW W/WASHER,STEEL | 4 |
| 410 | VHDS0498 | SCREW W/WASHER,STEEL | 1 |
| 414 | VHNS0070 | MAIN CAM PUSH NUT,STEEL | 2 |
| 422 | XWGV2D5G | WASHER,NYLON | 2 |
| 424 | XYC26+SF6J | SCREW W/WASHER,STEEL | 1 |
| 425 | XTB3+12A | TAPPING SCREW,STEEL | 4 |
| 430 | XTV26+6FFZJ | TAPPING SCREW,STEEL | 1 |
| 447 | VHDS0310 | SCREW,STEEL | 4 |
| 449 | VHDS0493 | TAPPING SCREW,STEEL | 4 |
| 450 | VHDS0309 | SCREW,STEEL | 4 |
| 460 | XTN4+12A | TAPPING SCREW,STEEL | 4 |
| 463 | VHDS0455 | SCREW W/WASHER,STEEL | 4 |
| 470 | LSMX0135 | CUT WASHER,NYLON | 1 |
| 471 | XSN26+5 | SCREW,STEEL | 1 |
| 472 | XTN26+5FJ | TAPPING SCREW,STEEL | 2 |
| 473 | XYN26+C6 | SCREW W/WASHER,STEEL | 2 |
| 474 | LSHD0056 | TAPPING SCREW,STEEL | 1 |
| 475 | XTV26+5FJ | TAPPING SCREW,STEEL | 2 |
| 478 | | SCREW W/WASHER,STEEL | |
| | VHDS0495 | ( E,F,G ) | 1 |

## 11.2.3. SERVICE FIXTURES AND TOOLS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| | VFMS0003H6 | VHS ALIGNMENT TAPE | |
| | VFKS0009 | REEL TABLE HEIGHT FIXTURE | |
| | VFKS0010 | POST ADJUSTMENT PLATE | |
| | VFKS0081 | GREASE | |
| | VFK0329 | POST ADJUSTMENT DRIVER | |
| | VFK1301 | SILICON GREASE | |
| | VFK27 | HEAD CLEANING STICK | |
| | VFK0330 | H-POSITION ADJUSTMENT DRIVER | |

# 11.3. ELECTRICAL REPLACEMENT PARTS LIST

### PRINTED CIRCUIT BOARD ASSEMBLY

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E1 | VEPS6062HB | MAIN C.B.A. | ■ E.S.D RTL |
| | ( A ) | | |
| E1 | VEPS6062HA | MAIN C.B.A. | ■ E.S.D. RTL |
| | ( B ) | | |
| E1 | VEPS6062HC | MAIN C.B.A. | ■ E.S.D. RTL |
| | ( C,D ) | | |
| E1 | VEPS6063HA | MAIN C.B.A. | ■ E.S.D. RTL |
| | ( E ) | | |
| E1 | VEPS6063HC | MAIN C.B.A. | ■ E.S.D. RTL |
| | ( F ) | | |
| E1 | VEPS6063HB | MAIN C.B.A. | ■ E.S.D. RTL |
| | ( G ) | | |
| E4 | VEPS8057B | OPERATION C.B.A. | ■ RTL |
| | ( A,B,C,D ) | | |
| E4 | VEPS8057C | OPERATION C.B.A. | ■ E.S.D. RTL |
| | ( E,F,G ) | | |
| E126 | VEMS0331 | CAPSTAN STATOR C.B.A. NR | ■ |
| | ( A,B,C,D ) | | |
| E126 | VEMS0333 | CAPSTAN STATOR C.B.A. NR | ■ |
| | ( E,F,G ) | | |
| E6 | VEPS5032A | Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. | ■ RTL |

## 11.3.1. MAIN C.B.A. ( A,B,C,D ) ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC1001 | PS2501-1-X | IC, LINEAR ERROR V. DET | ⚠ |
| | OR 0N3131-R.KT | IC, LINEAR ERROR V. DET | ⚠ |
| | OR 0N3131-S.KT | IC, LINEAR ERROR V. DET | ⚠ |
| IC2601 | AN3808K | IC, LINEAR CYLINDER MOTOR DRIVE | |
| IC3001 | AN3479FBP-A | IC, LINEAR VIDEO/AUDIO PROCESS | |
| IC3101 | MN3885S | IC, CCD 1H DELAY | E.S.D. |
| IC3801 | AN3275SB-E1 | IC, LINEAR SYNC DETECTOR | |
| | ( B,C,D ) | | |
| IC4201 | AN3662FBP | IC, LINEAR Hi-Fi AUDIOMTS/SAP PROCESS | |
| | OR AN3662FBP-V | IC, LINEAR Hi-Fi AUDIO MTS/SAP PROCESS | |
| IC6001 | MN101D02GPP1 | IC, 8BIT MICROCONTROLLER | E.S.D. |
| | ( A ) | | |
| | MN101D02HPR1 | IC, 8BIT MICROCONTROLLER | E.S.D. |
| | ( B,C,D ) | | |
| IC6002 | SG-PK01 | REEL SENSOR | |
| IC6003 | SG-PK01 | REEL SENSOR | |
| IC6005 | KS24C011CS | IC, 1K EEPROM MEMORY | E.S.D. |
| | OR KS24C011IS | IC, 1K EEPROM MEMORY | E.S.D. |
| | OR M24C01-MN6 | IC, 1K EEPROM MEMORY | E.S.D. |
| IC6301 | MN12512 | IC, LOGIC OTHER INDICATOR PANEL CONTROL | E.S.D. |

## TRANSISTORS

| Ref. No. | Part No. | PartName& Description | Remarks |
|---|---|---|---|
| Q1001 | 2SC4533LP.KT | | ⚠ |
| | OR 2SC5130LF608 | | ⚠ |
| Q1002 | 2SD2259 | | |
| Q1003 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q1004 | 2SA1037K146R | CHIP | |
| | OR 2SB709A(R,S) | CHIP | |
| Q1005 | 2SA1576A106R | CHIP | |
| | OR 2SB1218ARS | CHIP | |
| Q1051 | 2SD1581(T) | | |
| | OR 2SD2159(T) | | |
| Q1052 | 2SC2412K1 | CHIP | |
| | OR 2SD601(R,S) | CHIP | |
| Q1053 | 2SD2097TV2R | CHIP | |
| | OR 2SD235800A | CHIP | |
| Q3001 | 2SA1037K146R | CHIP | |
| | OR 2SB709A | CHIP | |
| Q3875 | 2SA1037K146R | CHIP | |
| | OR 2SB709A | CHIP | |
| | ( B,C,D ) | | |
| Q4001 | 2SA1576A106R | CHIP | |
| | OR 2SB1218ARS | CHIP | |
| Q4002 | 2SD1819A(R,S) | CHIP | |
| Q4003 | 2SD1819A(R,S) | CHIP | |
| Q4004 | DTA114TU | CHIP | |
| | OR UN5115 | CHIP | |
| Q4005 | DTC114TU | CHIP | |
| | OR UN5215 | CHIP | |
| Q4006 | DTC114TU | CHIP | |

| Ref. No. | Part No. | PartName& Description | Remarks |
|---|---|---|---|
| | OR UN5215 | CHIP | |
| Q4007 | DTC114TU | CHIP | |
| | OR UN5215 | CHIP | |
| Q4101 | 2SC2412K1 | CHIP | |
| | OR 2SD601(R,S) | CHIP | |
| Q6001 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6002 | 2SB709A(R,S) | CHIP | |
| Q6003 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6005 | 2SA1037K146R | CHIP | |
| | OR 2SB709A(R,S) | CHIP | |
| Q6006 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6007 | DTA143EU | CHIP | |
| | OR UN511L | CHIP | |
| Q6009 | VEKS5707 | PHOTO SENSOR UNIT | |
| Q6010 | VEKS5707 | PHOTO SENSOR UNIT | |

## DIODES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| D1001 | S1WBA60-4062 | | ⚠ |
| D1002 | EG01V1 | | |
| | OR ERA18-04V3 | | |
| | OR RMPG06J6203 | | |
| D1003 | ERA18-04V3 | | |
| D1005 | EG01V1 | | |
| | OR ERA18-04V3 | | |
| | OR RMPG06J6203 | | |
| D1006 | ERB32-01L3 | | |
| | OR ERC30-01L3 | | |
| | OR RU2YXLFC1 | | |
| | OR RU3YXLFC1 | | |
| D1007 | MA188 | | |
| | OR 1SS244T-77 | | |
| D1008 | EC21QS03L | | |
| | OR SFPJ-63 | | |
| D1009 | D1FS4 | | |
| | OR EC10QS03L | | |
| | OR EP10QY03 | | |
| | OR SFPJ-53 | | |
| | OR U1FWJ44N | | |
| D1011 | MA4051N-TAKT | ZENER 5.1V | |
| D1012 | MA858 | | |
| | OR 1SS135T-77 | | |
| D1013 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D1015 | MA7180 | ZENER 18V | ⚠ |
| D1016 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| D1017 | ERA15-01V5 | | |
| D1051 | MA4110N-H | ZENER 11V | |
| D4209 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6001 | VEKS5708 | SENSOR LED UNIT | |
| D6003 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6324 | MA4056-M | ZENER 5.6V | |
| D6325 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6326 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |

## RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R1001 | VRESC2TK275T | +-10% 1/2W 2.7M | ⚠ |
| R1003 | VRESE2TJ334 | 1/2W 330K | |
| R1004 | ERG2SJW333E | METAL OXIDE 2W 33K | |
| R1005 | ERG1SJW560E | METAL OXIDE 1W 56 | |
| R1006 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R1007 | ERDS2TJ101 | 100 | |
| R1008 | ERDS2TJ392 | 3.9K | |
| R1010 | ERD25FYJ100T | 10 | ⚠ |
| | OR VRESS4FJ100E | 10 | ⚠ |
| R1011 | ERD25FYJ100T | 10 | ⚠ |
| | OR VRESS4FJ100E | 10 | ⚠ |
| R1014 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1015 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1016 | ERJ8GEYJ562V | MGF CHIP 1/8W 5.6K | |
| R1017 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R1018 | ERJ6GEYJ183V | MGF CHIP 1/10W 18K | |
| R1019 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R1020 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R1022 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1024 | ERD2FCVG330T | +-2% 33 | ⚠ |
| R1025 | VRESE2TJ150 | 1/2W 15 | |
| R1051 | ERJ6GEYJ122V | MGF CHIP 1/10W 1.2K | |
| R1052 | ERDS2TJ153 | 15K | |
| R1053 | ERDS2TJ153 | 15K | |
| R1057 | ERDS2TJ331 | 330 | |
| R1058 | ERDS2TJ104 | 100K | |
| R1068 | ERDS2T0 | 0 | ● |
| R2601 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2602 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2603 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2604 | ERDS2TJ1R0 | 1 | |
| R2605 | ERDS2TJ1R2 | 1.2 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R2606 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R3003 | ERJ6GEYJ101V | MGF CHIP 1/10W 100 | |
| R3004 | ERJ6GEYJ750V | MGF CHIP 1/10W 75 | |
| R3008 | ERDS2TJ561 | 560 | |
| R3022 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R3023 | ERJ6GEYJ121V | MGF CHIP 1/10W 120 | |
| R3027 | ERJ6GEYJ681V | MGF CHIP 1/10W 680 | |
| R3029 | ERJ6GEYJ125V | MGF CHIP 1/10W 1.2M | |
| R3031 | ERJ6GEYJ474V | MGF CHIP 1/10W 470K | |
| R3033 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R3034 | ERJ6GEYJ121V | MGF CHIP 1/10W 120 | |
| R3035 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R3036 | ERJ6GEYJ122V | MGF CHIP 1/10W 1.2K | |
| R3041 | ERJ6GEYJ750V | MGF CHIP 1/10W 75 | |
| R3051 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R3052 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R3301 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R3302 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R3305 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R3803 | ERJ6GEYG473V | MGF CHIP+-2% 1/10W 47K | |
| | ( B,C,D ) | | |
| R3807 | ERJ6GEYJ393V | MGF CHIP 1/10W 39K | |
| | ( B,C,D ) | | |
| R3810 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| | ( B,C,D ) | | |
| R3811 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| | ( B,C,D ) | | |
| R3874 | ERJ6GEYJ471V | MGF CHIP 1/10W 470 | |
| | ( B,C,D ) | | |
| R3875 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| | ( B,C,D ) | | |
| R4001 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4002 | ERJ6GEYJ334V | MGF CHIP 1/10W 330K | |
| R4003 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R4004 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4005 | ERJ6GEYJ225V | MGF CHIP 1/10W 2.2M | |
| R4006 | ERJ6GEYJ681V | MGF CHIP 1/10W 680 | |
| R4007 | ERJ6GEYJ821V | MGF CHIP 1/10W 820 | |
| R4008 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R4010 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4011 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R4012 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R4014 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R4015 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R4016 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | ● |
| R4017 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4027 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | ● |
| R4028 | ERJ6GEYJ332V | MGF CHIP 1/10W 3.3K | |
| R4101 | ERJ6GEYJ224V | MGF CHIP 1/10W 220K | |
| R4102 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4103 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R4201 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4202 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R4203 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4204 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4205 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4206 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4207 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4208 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4209 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4210 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4213 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4214 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4218 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R4219 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R4221 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4222 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4223 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4224 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4225 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4226 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4228 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4453 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4455 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4901 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6001 | ERDS2TJ101 | 100 | |
| R6003 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R6006 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6007 | ERJ6GEYJ272V | MGF CHIP 1/10W 2.7K | |
| R6010 | ERJ6GEYJ182V | MGF CHIP 1/10W 1.8K | |
| R6012 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6014 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( B,C,D ) | | |
| R6015 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( B,C,D ) | | |
| R6016 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6019 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6022 | ERJ6GEYJ273V | MGF CHIP 1/10W 27K | |
| R6024 | ERJ6GEYJ562V | MGF CHIP 1/10W 5.6K | |
| R6025 | ERJ6GEYJ332V | MGF CHIP 1/10W 3.3K | |
| R6026 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6027 | ERJ6GEYJ101V | MGF CHIP 1/10W 100 | |
| R6028 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6029 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R6030 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6033 | ERDS2TJ681 | 680 | |
| R6035 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6036 | ERJ6GEYJ563V | MGF CHIP 1/10W 56K | |
| R6037 | ERJ6GEYJ391V | MGF CHIP 1/10W 390 | |
| R6038 | ERDS2TJ560 | 56 | |
| R6039 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6052 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6054 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6057 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6059 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6060 | ERJ6GEYJ475V | MGF CHIP 1/10W 4.7M | |
| R6062 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R6063 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R6064 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R6065 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6066 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6068 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6069 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6070 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6071 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6072 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6073 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6074 | ERDS2TJ272 | 2.7K | |
| R6076 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6077 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6078 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6079 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6080 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6081 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6082 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6085 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6086 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6087 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6088 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| | ( B,C,D ) | | |
| R6089 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6093 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6100 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6109 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6110 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6114 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6115 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6116 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6202 | ERJ6GEYJ274V | MGF CHIP 1/10W 270K | |
| R6203 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6204 | ERJ6GEYJ184V | MGF CHIP 1/10W 180K | |
| R6205 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6224 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6228 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R6230 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R6231 | ERJ6GEYJ225V | MGF CHIP 1/10W 2.2M | |
| R6346 | ERDS2TJ470 | 47 | |
| R6350 | ERDS2TJ470 | 47 | |
| R6351 | ERDS2TJ390 | 39 | |
| R6353 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6364 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6365 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6366 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6367 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6368 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6369 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R7002 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |
| R7004 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R7006 | ERJ6GEYJ112V | MGF CHIP 1/10W 1.1K | |

## CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C1001 | ECKNTS103MF8 | CERAMIC+-20% 250V 0.01 | ⚠ |
| | OR VCKSTQG103ZY | CERAMIC+80%-20% 125V 0.01 | ⚠ |
| | OR VCKSUQD103MY | CERAMIC+-20% 125V 0.01 | ⚠ |
| C1002 | ECKNNB332ME8 | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR ECKNTS332ME8 | CERAMIC+-20% 250V 3300P | ⚠ |
| | OR VCKSTQG332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR VCKSUQD332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| C1003 | ECKNNB332ME8 | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR ECKNTS332ME8 | CERAMIC+-20% 250V 3300P | ⚠ |
| | OR VCKSTQG332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR VCKSUQD332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| C1004 | ECEA2DU121YB | ELECTROLYTIC 200V 120 | ⚠ |
| | OR VCESAN2D121B | ELECTROLYTIC 200V 120 | ⚠ |
| | OR VCESR2D121XB | ELECTROLYTIC 200V 120 | ⚠ |
| C1005 | ECA2DHG4R7B | ELECTROLYTIC 200V 4.7 | |
| C1006 | ECKW2H221KB5 | CERAMIC 500V 220P | |
| C1007 | VCUSQAH224KB | C CHIP 50V 0.22 | |
| C1009 | VCYSBRE183KX | CERAMIC 25V 0.018 | |
| C1010 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C1011 | ECA1HHG4R7I | ELECTROLYTIC 50V 4.7V | |
| C1012 | ECEA1PEE331 | ELECTROLYTIC 18V 330 | |
| C1013 | ECA1EM331B | ELECTROLYTIC 25V 330 | |
| C1014 | ECA1HHG4R7I | ELECTROLYTIC 50V 4.7V | |
| C1016 | ECEA1PEE331 | ELECTROLYTIC 18V 330 | |
| C1017 | ECA0JM102B | ELECTROLYTIC 6.3V 1000 | |
| C1018 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C1019 | ECEA0JEE101 | ELECTROLYTIC 6.3V 100 | |
| C1021 | EEUGA1H1R0H | ELECTROLYTIC 50V 1 | |
| C1023 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C1025 | ECKNRS101MBY | CERAMIC+-20% 125V 100P | ⚠ |
| | OR ECKNTS101MB | CERAMIC+-20% 250V 100 | ⚠ |
| | OR VCKSTNG101KW | CERAMIC 125V 100P | ⚠ |
| | OR VCKSUND101KW | CERAMIC 125V 100P | ⚠ |
| C1027 | ECKNTS103MF8 | CERAMIC+-20% 250V 0.01 | ⚠ |
| | OR VCKSTQG103ZY | CERAMIC+80%-20% 125V 0.01 | ⚠ |
| | OR VCKSUQD103MY | CERAMIC+-20% 125V 0.01 | ⚠ |
| C1029 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C1030 | VCYSBRE183KX | CERAMIC 25V 0.018 | |
| C1032 | ECEA0JKA221 | ELECTROLYTIC 6.3V 220 | |
| C1051 | ECEA1HKAR47 | ELECTROLYTIC 50V 0.47 | |
| C1052 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C1058 | ECEA0JEE101 | ELECTROLYTIC 6.3V 100 | |
| C1059 | ECEA1CKA470 | ELECTROLYTIC 16V 47 | |
| C2601 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2602 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2603 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2604 | ECUV1C104KBN | C CHIP 16V 0.1 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C2605 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C2606 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C2607 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2608 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2609 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2610 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2611 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C2612 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3001 | ECA0JM471 | ELECTROLYTIC 6.3V 470 | |
| C3014 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3015 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3017 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C3018 | ECUV1H181JCN | C CHIP+-5% 50V 180P | |
| C3019 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3021 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3022 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3023 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3024 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C3025 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3026 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3027 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3028 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C3029 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3030 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3031 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3032 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3033 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C3034 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3035 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3036 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3037 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C3038 | ECEA1HKS2R2 | ELECTROLYTIC 50V 2.2 | |
| C3039 | ECUV1H822KBN | C CHIP 50V 8200P | |
| C3043 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3044 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |
| C3045 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |
| C3047 | ECUV1H181JCN | C CHIP+-5% 50V 180P | |
| C3048 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3049 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3050 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3051 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3052 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3053 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |
| C3054 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3055 | ECUV1H392KBN | C CHIP 50V 3900P | |
| C3056 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3057 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3058 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3059 | ECUV1H020CCN | CCHIP+-0.25P 50V 2P | |
| C3062 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3101 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3102 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3104 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3105 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C3106 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3108 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C3109 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3302 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3303 | ECUV1H121JCN | C CHIP+-5% 50V 120P | |
| C3306 | ECEA1HKAR47 | ELECTROLYTIC 50V 0.47 | |
| C3308 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3801 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| | ( B,C,D ) | | |
| C3802 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( B,C,D ) | | |
| C3803 | ECUV1H332KBN | C CHIP 50V 3300P | |
| | ( B,C,D ) | | |
| C3804 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( B,C,D ) | | |
| C3805 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( B,C,D ) | | |
| C3806 | ECUV1H392KBN | C CHIP 50V 3900P | |
| | ( B,C,D ) | | |
| C3807 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| | ( B,C,D ) | | |
| C3808 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| | ( B,C,D ) | | |
| C3811 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| | ( B,C,D ) | | |
| C3812 | ECUV1H102KBN | C CHIP 50V 1000P | |
| | ( B,C,D ) | | |
| C3815 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| | ( B,C,D ) | | |
| C3816 | VCUSTBC224JB | C CHIP+-5% 16V 0.22 | |
| | ( B,C,D ) | | |
| C3817 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| | ( B,C,D ) | | |
| C3818 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| | ( B,C,D ) | | |
| C3819 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| | ( B,C,D ) | | |
| C3820 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( B,C,D ) | | |
| C3821 | ECUV1H390JCN | C CHIP+-5% 50V 39P | |
| | ( B,C,D ) | | |
| C3822 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| | ( B,C,D ) | | |
| C3825 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| | ( B,C,D ) | | |
| C3826 | ECUV1C474ZFN | C CHIP+80%-20% 16V 0.47 | |
| | ( B,C,D ) | | |
| C3828 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| | ( B,C,D ) | | |
| C3829 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| | ( B,C,D ) | | |
| C4001 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C4002 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4003 | ECUV1H272KBN | C CHIP 50V 2700P | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C4004 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4005 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4006 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C4007 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4008 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C4009 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4010 | ECUV1E273KBN | C CHIP 25V 0.027 | |
| C4011 | ECUV1H822KBN | C CHIP 50V 8200P | |
| C4012 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4014 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4015 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C4017 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4102 | ECQB1562JF | POLYESTER+-5% 100V 5600P | |
| C4103 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4104 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4106 | ECEA1CKA220 | ELECTROLYTIC 16V 22 | |
| C4201 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C4202 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C4203 | ECEA0JKA330 | ELECTROLYTIC 6.3V 33 | |
| C4204 | ECEA0JKA330 | ELECTROLYTIC 6.3V 33 | |
| C4205 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4206 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4207 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4208 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4209 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4210 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4211 | ECUV1H153KBN | C CHIP 50V 0.015 | |
| C4212 | ECUV1H153KBN | C CHIP 50V 0.015 | |
| C4213 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4216 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4217 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4218 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4219 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4227 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C4228 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4229 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C4230 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C4451 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4452 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4455 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4456 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4459 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C4901 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4902 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C4903 | ECEA1HKA3R3 | ELECTROLYTIC 50V 3.3 | |
| C4904 | ECEA1HKA3R3 | ELECTROLYTIC 50V 3.3 | |
| C4905 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4906 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4911 | ECUV1E223KBN | C CHIP 25V 0.022 | |
| C4912 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4913 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4917 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4918 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4919 | ECUV1C104KBN | C CHIP 16V 0.1 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C4920 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C6001 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6003 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6005 | ECUV1H150JCN | C CHIP+-5% 50V 15P | |
| C6006 | ECUV1H100CCN | C CHIP+-0.25P 50V 10P | |
| C6016 | ECEA0JKA331 | ELECTROLYTIC 6.3V 330 | |
| C6019 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C6026 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6027 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6033 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| C6201 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6203 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C6208 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C6214 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6216 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C6217 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6218 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C6221 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C6222 | ECUV1H272KBN | C CHIP 50V 2700P | |
| C6223 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C6224 | ECEA0JKA331 | ELECTROLYTIC 6.3V 330 | |
| C6228 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6231 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C6305 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C6306 | ECA0JM471 | ELECTROLYTIC 6.3V 470 | |
| C6307 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6310 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| C6315 | ECA1HM101B | ELECTROLYTIC 50V 100 | |
| C7001 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C7010 | ECUV1H102KBN | C CHIP 50V 1000P | |

## FILTERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| FL4901 | LSLF0057 | BAND PASS | |

## COILS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| L1001 | ELF15N005AB | LINE FILTER 0.5A 18M | ⚠ |
| | OR VLQS0166 | LINE FILTER 0.5A 18M | ⚠ |
| | OR VLQS0167 | LINE FILTER 0.5A 18M | ⚠ |
| L1002 | VLQSAB7D220K | 22 | |
| L1003 | VLQSAB7D100K | 10 | |
| L1006 | VLPS0083 | | |
| L3014 | VLQSH02R390K | 39 | |
| L3016 | ELESN330KA | 33 | |
| L3018 | ELESN470KA | 47 | |
| L3101 | ELESN101KA | 100 | |
| L3801 | ELESN101KA | 100 | |
| | ( B,C,D ) | | |
| L3802 | ELESN470KA | 47 | |
| | ( B,C,D ) | | |
| L4001 | ELELN153KA | 15M | |
| L4101 | ELESN471KA | 470 | |
| L4201 | ELESN101KA | 100 | |
| L4451 | ELESN101KA | 100 | |
| L6002 | ELEXT101KE04 | 100 | |
| L6301 | VLQSR05R101K | 100 | |
| L7001 | VLQSAB7D220K | 22 | |
| L7003 | VLQSH02R101K | 100 | |
| L7005 | VLPS0092 | CHIP | |

## CRYSTAL OSCILLATOR

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| X3010 | VSXS0195 | | |
| X6001 | VSXS0232-TB | | |

## PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P1001 | LSJP0807 | CONNECTOR 2P | |
| P3551 | VJPS0882 | CONNECTOR 12P | |
| P4001 | VJSS0888 | FE CONNECTOR 2P | |
| P4451 | LSJP0087 | CONNECTOR 4P | |
| P6201 | LSJP0089 | CONNECTOR 12P | |
| P6202 | LSJP0088 | CONNECTOR 12P | |
| P6320 | VJPS0885 | CONNECTOR 20P | |

## SWITCHES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| SW6001 | LSSH0002 | LEAF SWITHC-SAFETY TAB | |
| SW6002 | LSSS0012 | MODE SELECT SWITCH | |
| SW6306 | EVQ11A09K | PUSH SWITCH | |
| SW6310 | EVQ11A09K | PUSH SWITCH | |
| SW6313 | EVQ11A09K | PUSH SWITCH | |
| SW6314 | EVQ11A09K | PUSH SWITCH | |
| SW6316 | EVQ11A09K | PUSH SWITCH | |

### FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| F1001 | VSFS0003A16 | FUSE 125V 1.6A | ⚠ |
| | OR VSFS0032B16 | FUSE 125V 1.6A | ⚠ |
| | OR XBA1C16NU100 | FUSE 125V 1.6A | ⚠ |
| PR1001 | ICP-N38-TP1 | IC PROTECTOR 1.5A | ⚠ |
| | OR LSSF009A25E | IC PROTECTOR 1.5A | ⚠ |
| | OR UNH000600A | IC PROTECTOR 1.5A | ⚠ |
| PR1002 | ICP-N38-TP1 | IC PROTECTOR 1.5A | ⚠ |
| | OR LSSF009A25E | IC PROTECTOR 1.5A | ⚠ |
| | OR UNH000600A | IC PROTECTOR 1.5A | ⚠ |

### TRANSFORMER

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| T1001 | ETS28AD2J3NP | | ⚠ |
| | OR ETS28AD2J3PP | | ⚠ |
| | OR VTPS0041-1 | | ⚠ |
| | OR VTPS0041-2 | | ⚠ |
| T4101 | EIQ7QF018Q | | |

### MISCELLANEOUS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| DP6301 | VSZS0130 | DISPLAY TUBE | |
| JK3001 | LSJH0029 | AUDIO/VIDEO JACK SOCKET | |
| E21 | VEQS0614H | TUNER,UHF/VHF NR | |
| E23 | EYF52BC | FUSE HOLDER | |
| E25 | LSGM0002 | DISPLAY TUBE HOLDER | |
| E27 | PNA4611M03KT | INFRARED RECEIVER UNIT | |

## 11.3.2. MAIN C.B.A. ( E,F,G ) ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC1001 | PS2501-1-X | IC, LINEAR ERROR V. DET | ⚠ |
| | OR 0N3131-R.KT | IC, LINEAR ERROR V. DET | ⚠ |
| | OR 0N3131-S.KT | IC, LINEAR ERROR V. DET | ⚠ |
| IC2601 | AN3808K | IC, LINEAR CYLINDER MOTOR DRIVE | |
| IC3001 | AN3479FBP-A | IC, LINEAR VIDEO/AUDIO PROCESS | |
| IC3101 | MN3885S | IC, CCD 1H DELAY | E.S.D. |
| IC3201 | MN3890S | IC, CCD 1H DELAY | E.S.D. |
| | ( G ) | | |
| IC3801 | AN3275SB-E1 | IC, LINEAR SYNC DETECTOR | |
| IC4201 | AN3662FBP | IC, LINEAR Hi-Fi AUDIO MTS/SAP PROCESS | |
| | OR AN3662FBP-V | IC, LINEAR Hi-Fi AUDIO MTS/SAP PROCESS | |
| IC6001 | MN101D02HPS1 | IC, 8BIT MICROCONTROLLER | E.S.D. |
| IC6002 | SG-PK01 | REEL SENSOR | |
| IC6003 | SG-PK01 | REEL SENSOR | |
| IC6005 | AT24C01A10SI | IC, 1K EEPROM MEMORY | E.S.D. |
| | OR KS24C011IS | IC, 1K EEPROM MEMORY | E.S.D. |
| | OR M24C01-MN6 | IC, 1K EEPROM MEMORY | E.S.D. |
| IC6303 | MN12510F | IC, LOGIC OTHER INDICATOR PANEL CONTROL | E.S.D. |

## TRANSISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| Q1001 | 2SC4130LF608 | | ⚠ |
| | OR 2SC4559LP.KT | | ⚠ |
| Q1002 | 2SD2259 | | |
| Q1003 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q1004 | 2SA1037K146R | CHIP | |
| | OR 2SB709A(R,S) | CHIP | |
| Q1005 | 2SA1576A106R | CHIP | |
| | OR 2SB1218ARS | CHIP | |
| Q1051 | 2SD1581(T) | | |
| | OR 2SD2159(T) | | |
| Q1052 | 2SC2412K1 | CHIP | |
| | OR 2SD601(R,S) | CHIP | |
| Q1053 | 2SD2097TV2R | CHIP | |
| | OR 2SD235800A | CHIP | |
| Q1080 | 2SB1398(Q) | CHIP | |
| Q1081 | 2SD601(R,S) | CHIP | |
| Q1082 | 2SB1398(Q) | CHIP | |
| Q1083 | 2SD601(R,S) | CHIP | |
| Q3001 | 2SA1037K146R | CHIP | |
| | OR 2SB709A | CHIP | |
| Q3201 | HN1B01F | COMPLX CMP SI NPN CHIP | |
| | OR IMZ1 | COMPLX CMP SI NPN CHIP | |
| | OR XN4601 | COMPLX CMP SI NPN CHIP | |
| | ( G ) | | |
| Q3202 | 2SA1037K146R | CHIP | |
| | OR 2SB709A | CHIP | |
| | ( G ) | | |
| Q3875 | 2SA1037K146R | CHIP | |
| | OR 2SB709A | CHIP | |
| Q4001 | 2SA1576A106R | CHIP | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| | OR 2SB1218ARS | CHIP | |
| Q4002 | 2SD1819A(R,S) | CHIP | |
| Q4003 | 2SD1819A(R,S) | CHIP | |
| Q4004 | DTA114TU | CHIP | |
| | OR UN5115 | CHIP | |
| Q4005 | DTC114TU | CHIP | |
| | OR UN5215 | CHIP | |
| Q4006 | DTC114TU | CHIP | |
| | OR UN5215 | CHIP | |
| Q4007 | DTC114TU | CHIP | |
| | OR UN5215 | CHIP | |
| Q4101 | 2SC2412K1 | CHIP | |
| | OR 2SD601(R,S) | CHIP | |
| Q6001 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6002 | 2SB709A(R,S) | CHIP | |
| Q6003 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6005 | 2SA1037K146R | CHIP | |
| | OR 2SB709A(R,S) | CHIP | |
| Q6006 | 2SC4081T106R | CHIP | |
| | OR 2SD1819A(R,S) | CHIP | |
| Q6007 | DTA143EU | CHIP | |
| | OR UN511L | CHIP | |
| Q6009 | VEKS5707 | PHOTO SENSOR UNIT | |
| Q6010 | VEKS5707 | PHOTO SENSOR UNIT | |

## DIODES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| D1001 | S1WBA60-4062 | | ⚠ |
| D1002 | EG01V1 | | |
| | OR ERA18-04V3 | | |
| | OR RMPG06J6203 | | |
| D1003 | ERA18-04V3 | | |
| D1005 | EG01V1 | | |
| | OR ERA18-04V3 | | |
| | OR RMPG06J6203 | | |
| D1006 | ERB32-01L3 | | |
| | OR ERC30-01L3 | | |
| | OR RU2YXLFC1 | | |
| | OR RU3YXLFC1 | | |
| D1007 | MA188 | | |
| | OR 1SS244T-77 | | |
| D1008 | EC21QS03L | | |
| | OR SFPJ-63 | | |
| D1009 | D1FS4 | | |
| | OR EC10QS03L | | |
| | OR EP10QY03 | | |
| | OR SFPJ-53 | | |
| | OR U1FWJ44N | | |
| D1011 | MA4051N-TAKT | ZENER 5.1V | |
| D1012 | MA858 | | |
| | OR 1SS135T-77 | | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| D1013 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D1015 | MA7180 | ZENER 18V | ⚠ |
| D1016 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D1051 | MA4110N-H | ZENER 11V | |
| D1080 | EK19V1 | (early product) | |
| D1080 | SFPB-69V | CHIP (latest product | |
| D1081 | MA7240A-TR | ZENER 24V | |
| D1083 | ERA15-01V5 | | |
| D1084 | ERA15-01V5 | | |
| D1085 | ERA15-01V5 | | |
| D1086 | ERA15-01V5 | | |
| D1087 | ERA15-01V5 | | |
| D1088 | ERA15-01V5 | | |
| D4209 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6001 | VEKS5708 | SENSOR LED UNIT | |
| D6003 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6324 | MA4056-M | ZENER 5.6V | |
| | OR MTZJT-775.6B | ZENER 5.6V | |
| | OR RD5.6ESAB2 | ZENER 5.6V | |
| D6325 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |
| D6326 | MA165 | | |
| | OR 1SS119 | | |
| | OR 1SS133T | | |

## RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R1001 | VRESC2TK275T | +-10% 1/2W 2.7M | ⚠ |
| R1003 | VRESE2TJ334 | 1/2W 330K | |
| R1004 | ERG2SJW333E | METAL OXIDE 2W 33K | |
| R1005 | ERG1SJW560E | METAL OXIDE 1W 56 | |
| R1006 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R1007 | ERDS2TJ101 | 100 | |
| R1008 | ERDS2TJ392 | 3.9K | |
| R1010 | ERD25FYJ100T | 10 | ⚠ |
| | OR VRESS4FJ100E | 10 | ⚠ |
| R1011 | ERD25FYJ100T | 10 | ⚠ |
| | OR VRESS4FJ100E | 10 | ⚠ |
| R1014 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1015 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1016 | ERJ8GEYJ562V | MGF CHIP 1/8W 5.6K | |
| R1017 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R1018 | ERJ6GEYJ183V | MGF CHIP 1/10W 18K | |
| R1019 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R1020 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R1022 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R1024 | ERD2FCVG330T | +-2% 33 | ⚠ |
| R1025 | VRESE2TJ150 | 1/2W 15 | |
| R1051 | ERJ6GEYJ122V | MGF CHIP 1/10W 1.2K | |
| R1052 | ERDS2TJ153 | 15K | |
| R1053 | ERDS2TJ153 | 15K | |
| R1057 | ERDS2TJ331 | 330 | |
| R1058 | ERDS2TJ104 | 100K | |
| R1068 | ERDS2T0 | 0 | ● |
| R1080 | ERDS2TJ103 | 10K | |
| R1081 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R1082 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R1083 | VRESE2TJ122 | 1/2W 1.2K | |
| R1084 | VRESE2TJ122 | 1/2W 1.2K | |
| R1085 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R1086 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R2601 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2602 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2603 | ERJ6GEYJ330V | MGF CHIP 1/10W 33 | |
| R2604 | ERDS2TJ1R0 | 1 | |
| R2605 | ERDS2TJ1R2 | 1.2 | |
| R2606 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R3003 | ERJ6GEYJ101V | MGF CHIP 1/10W 100 | |
| R3004 | ERJ6GEYJ750V | MGF CHIP 1/10W 75 | |
| R3008 | ERDS2TJ561 | 560 | |
| R3022 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R3023 | ERJ6GEYJ121V | MGF CHIP 1/10W 120 | |
| R3027 | ERJ6GEYJ681V | MGF CHIP 1/10W 680 | |
| R3029 | ERJ6GEYJ125V | MGF CHIP 1/10W 1.2M | |
| R3031 | ERJ6GEYJ474V | MGF CHIP 1/10W 470K | |
| R3033 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R3034 | ERJ6GEYJ121V | MGF CHIP 1/10W 120 | |
| R3035 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R3036 | ERJ6GEYJ122V | MGF CHIP 1/10W 1.2K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R3041 | ERJ6GEYJ750V | MGF CHIP 1/10W 75 | |
| R3051 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R3052 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R3202 | ERJ6GEYJ821V | MGF CHIP 1/10W 820 | |
| | ( G ) | | |
| R3204 | EVMF6SA00B23 | VARIABLE 2K | |
| | ( G ) | | |
| R3205 | EVNGBAA01B13 | VARIABLE 1K | |
| | ( G ) | | |
| R3206 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |
| | ( G ) | | |
| R3207 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| | ( G ) | | |
| R3208 | ERJ6GEYJ182V | MGF CHIP 1/10W 1.8K | |
| | ( G ) | | |
| R3209 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |
| | ( G ) | | |
| R3210 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| | ( G ) | | |
| R3211 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( G ) | | |
| R3212 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| | ( G ) | | |
| R3213 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | ● |
| | ( G ) | | |
| R3214 | ERJ6GEYJ273V | MGF CHIP 1/10W 27K | |
| | ( G ) | | |
| R3301 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R3302 | ERJ6GEYJ392V | MGF CHIP 1/10W 3.9K | |
| R3305 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R3803 | ERJ6GEYG473V | MGF CHIP+-2% 1/10W 47K | |
| R3807 | ERJ6GEYJ393V | MGF CHIP 1/10W 39K | |
| R3810 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R3811 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R3874 | ERJ6GEYJ471V | MGF CHIP 1/10W 470 | |
| R3875 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R4001 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4002 | ERJ6GEYJ334V | MGF CHIP 1/10W 330K | |
| R4003 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R4004 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4005 | ERJ6GEYJ225V | MGF CHIP 1/10W 2.2M | |
| R4006 | ERJ6GEYJ681V | MGF CHIP 1/10W 680 | |
| R4007 | ERJ6GEYJ821V | MGF CHIP 1/10W 820 | |
| R4008 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R4010 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4011 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R4012 | ERJ6GEYJ682V | MGF CHIP 1/10W 6.8K | |
| R4014 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R4015 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R4016 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | ● |
| R4017 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4027 | ERJ6GEY0R00V | MGF CHIP 1/10W 0 | ● |
| R4028 | ERJ6GEYJ332V | MGF CHIP 1/10W 3.3K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R4101 | ERJ6GEYJ224V | MGF CHIP 1/10W 220K | |
| R4102 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4103 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R4201 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4202 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4203 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4204 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4205 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4206 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R4207 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4208 | ERJ6GEYJ822V | MGF CHIP 1/10W 8.2K | |
| R4209 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4210 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R4213 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4214 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4218 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R4219 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R4221 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4222 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4223 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4224 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4225 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4226 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4228 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R4453 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R4455 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R4901 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6001 | ERDS2TJ101 | 100 | |
| R6003 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R6006 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6007 | ERJ6GEYJ272V | MGF CHIP 1/10W 2.7K | |
| R6010 | ERJ6GEYJ182V | MGF CHIP 1/10W 1.8K | |
| R6012 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6014 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6015 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6016 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6019 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6022 | ERJ6GEYJ333V | MGF CHIP 1/10W 33K | |
| R6024 | ERJ6GEYJ562V | MGF CHIP 1/10W 5.6K | |
| R6025 | ERJ6GEYJ332V | MGF CHIP 1/10W3.3K | |
| R6026 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6027 | ERJ6GEYJ101V | MGF CHIP 1/10W 100 | |
| R6028 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6029 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R6030 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6033 | ERDS2TJ681 | 680 | |
| R6035 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6036 | ERJ6GEYJ563V | MGF CHIP 1/10W 56K | |
| R6037 | ERJ6GEYJ391V | MGF CHIP 1/10W 390 | |
| R6038 | ERDS2TJ560 | 56 | |
| R6039 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6049 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6051 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6052 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R6054 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6057 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6059 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6060 | ERJ6GEYJ475V | MGF CHIP 1/10W 4.7M | |
| R6062 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R6063 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R6064 | ERJ6GEYJ153V | MGF CHIP 1/10W 15K | |
| R6065 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6066 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6068 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6069 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6070 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6071 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6072 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6073 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6074 | ERDS2TJ272 | 2.7K | |
| R6076 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6077 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6078 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6079 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6080 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6081 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6082 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6085 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6086 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6087 | ERJ6GEYJ223V | MGF CHIP 1/10W 22K | |
| R6088 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6089 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6090 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6093 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6100 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6109 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6110 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6114 | ERJ6GEYJ221V | MGF CHIP 1/10W 220 | |
| R6115 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6116 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| R6202 | ERJ6GEYJ274V | MGF CHIP 1/10W 270K | |
| R6203 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R6204 | ERJ6GEYJ184V | MGF CHIP 1/10W 180K | |
| R6205 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6224 | ERJ6GEYJ472V | MGF CHIP 1/10W 4.7K | |
| R6228 | ERJ6GEYJ152V | MGF CHIP 1/10W 1.5K | |
| R6230 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |
| R6231 | ERJ6GEYJ225V | MGF CHIP 1/10W 2.2M | |
| R6301 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6302 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6303 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6304 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6305 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6306 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6307 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6308 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6309 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |
| R6310 | ERJ6GEYJ683V | MGF CHIP 1/10W 68K | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R6311 | ERDS2TJ270 | 27 | |
| R6312 | ERDS2TJ270 | 27 | |
| R6346 | ERDS2TJ470 | 47 | |
| R6353 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R6361 | ERJ8GEYJ4R7V | MGF CHIP 1/8W 4.7 | |
| R6364 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6365 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6366 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6367 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6368 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R6369 | ERJ6GEYJ104V | MGF CHIP 1/10W 100K | |
| R7002 | ERJ6GEYJ271V | MGF CHIP 1/10W 270 | |
| R7004 | ERJ6GEYJ103V | MGF CHIP 1/10W 10K | |
| R7006 | ERJ6GEYJ112V | MGF CHIP 1/10W 1.1K | |

## CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C1001 | ECKNTS103MF8 | CERAMIC+-20% 250V 0.01 | ⚠ |
| | OR VCKSTQG103ZY | CERAMIC+80%-20% 125V 0.01 | ⚠ |
| | OR VCKSUQD103MY | CERAMIC+-20% 125V 0.01 | ⚠ |
| C1002 | ECKNNB332ME8 | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR ECKNTS332ME8 | CERAMIC+-20% 250V 3300P | ⚠ |
| | OR VCKSTQG332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR VCKSUQD332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| C1003 | ECKNNB332ME8 | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR ECKNTS332ME8 | CERAMIC+-20% 250V 3300P | ⚠ |
| | OR VCKSTQG332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| | OR VCKSUQD332MX | CERAMIC+-20% 125V 3300P | ⚠ |
| C1004 | ECEA2DU121YB | ELECTROLYTIC 200V 120 | ⚠ |
| | OR VCESAN2D121B | ELECTROLYTIC 200V 120 | ⚠ |
| | OR VCESR2D121XB | ELECTROLYTIC 200V 120 | ⚠ |
| C1005 | ECA2DHG4R7B | ELECTROLYTIC 200V 4.7 | |
| C1006 | ECKW2H221KB5 | CERAMIC 500V 220P | |
| C1007 | VCUSQAH224KB | C CHIP 50V 0.22 | |
| C1009 | VCYSBRE183KX | CERAMIC 25V 0.018 | |
| C1010 | ECUV1H101JCN | C CHIP+-5% 50V 100P<br>(early product) | |
| C1010 | VCYSARH101KB | C CHIP 50V 100P<br>(latest product) | |
| C1011 | ECA1HHG4R7I | ELECTROLYTIC 50V 4.7V | |
| C1012 | ECEA1PEE331 | ELECTROLYTIC 18V 330 | |
| C1013 | ECA1EM331B | ELECTROLYTIC 25V 330 | |
| C1014 | ECA1HHG4R7I | ELECTROLYTIC 50V 4.7V | |
| C1016 | ECEA1PEE331 | ELECTROLYTIC 18V 330 | |
| C1017 | ECA0JM102B | ELECTROLYTIC 6.3V 1000 | |
| C1018 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C1019 | ECEA0JEE101 | ELECTROLYTIC 6.3V 100 | |
| C1021 | EEUGA1H1R0H | ELECTROLYTIC 50V 1 | |
| C1023 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C1025 | ECKNRS101MBY | CERAMIC+-20% 125V 100P | ⚠ |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| | OR ECKNTS101MB | CERAMIC+-20% 250V 100 | ⚠ |
| | OR VCKSTNG101KW | CERAMIC 125V 100P | ⚠ |
| | OR VCKSUND101KW | CERAMIC 125V 100P | ⚠ |
| C1027 | ECKNTS103MF8 | CERAMIC+-20% 250V 0.01 | ⚠ |
| | OR VCKSTQG103ZY | CERAMIC+80%-20% 125V 0.01 | ⚠ |
| | OR VCKSUQD103MY | CERAMIC+-20% 125V 0.01 | ⚠ |
| C1029 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C1030 | VCYSBRE183KX | CERAMIC 25V 0.018 | |
| C1032 | ECEA0JKA221 | ELECTROLYTIC 6.3V 220 | |
| C1051 | ECEA1HKAR47 | ELECTROLYTIC 50V 0.47 | |
| C1052 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C1058 | ECEA0JEE101 | ELECTROLYTIC 6.3V 100 | |
| C1059 | ECEA1CKA470 | ELECTROLYTIC 16V 47 | |
| C1080 | EEUFD1V331LB | ELECTROLYTIC 35V 330 | |
| C2601 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2602 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2603 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C2604 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C2605 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C2606 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C2607 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2608 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2609 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2610 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2611 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C2612 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3001 | ECA0JM471 | ELECTROLYTIC 6.3V 470 | |
| C3014 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3015 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3017 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C3018 | ECUV1H181JCN | C CHIP+-5% 50V 180P | |
| C3019 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3021 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3022 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3023 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3024 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C3025 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3026 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3027 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3028 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C3029 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3030 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3031 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3032 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3033 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C3034 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C3035 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3036 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3037 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C3038 | ECEA1HKS2R2 | ELECTROLYTIC 50V 2.2 | |
| C3039 | ECUV1H822KBN | C CHIP 50V 8200P | |
| C3043 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3044 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C3045 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |
| C3047 | ECUV1H181JCN | C CHIP+-5% 50V 180P | |
| C3048 | ECUV1H560JCN | C CHIP+-5% 50V 56P | |
| C3049 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3050 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3051 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3052 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3053 | ECUV1C474ZFV | C CHIP+80%-20% 16V 0.47 | |
| C3054 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3055 | ECUV1H392KBN | C CHIP 50V 3900P | |
| C3056 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3057 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3058 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3059 | ECUV1H020CCN | C CHIP+-0.25P 50V 2P | |
| C3062 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3101 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3102 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3104 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3105 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3106 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3108 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C3109 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3201 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3202 | ECEA0JKS470 | ELECTROLYTIC 6.3V 47 | |
| | ( G ) | | |
| C3203 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3204 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( G ) | | |
| C3205 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3206 | ECUV1H102KBN | C CHIP 50V 1000P | |
| | ( G ) | | |
| C3207 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3208 | ECUV1H472KBN | C CHIP 50V 4700P | |
| | ( G ) | | |
| C3210 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3211 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( G ) | | |
| C3213 | ECUV1H121JCN | C CHIP+-5% 50V 120P | |
| | ( G ) | | |
| C3214 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( G ) | | |
| C3215 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| | ( G ) | | |
| C3216 | ECUV1H180JCN | C CHIP+-5% 50V 18P | |
| | ( G ) | | |
| C3217 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| | ( G ) | | |
| C3218 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( G ) | | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C3302 | ECUV1A105ZFV | C CHIP+80%-20% 10V 1 | |
| C3303 | ECUV1H121JCN | C CHIP+-5% 50V 120P | |
| C3306 | ECEA1HKAR47 | ELECTROLYTIC 50V 0.47 | |
| C3308 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3801 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C3802 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3803 | ECUV1H332KBN | C CHIP 50V 3300P | |
| C3804 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3805 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3806 | ECUV1H392KBN | C CHIP 50V 3900P | |
| C3807 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C3808 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C3811 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C3812 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C3815 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C3816 | VCUSTBC224JB | C CHIP+-5% 16V 0.22 | |
| C3817 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C3818 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C3819 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C3820 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3821 | ECUV1H390JCN | C CHIP+-5% 50V 39P | |
| C3822 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C3825 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C3826 | ECUV1C474ZFN | C CHIP+80%-20% 16V 0.47 | |
| C3828 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C3829 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C4001 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C4002 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4003 | ECUV1H272KBN | C CHIP 50V 2700P | |
| C4004 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4005 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4006 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C4007 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4008 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C4009 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4010 | ECUV1E273KBN | C CHIP 25V 0.027 | |
| C4011 | ECUV1H822KBN | C CHIP 50V 8200P | |
| C4012 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4014 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4015 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C4017 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4102 | ECQB1562JF | POLYESTER+-5% 100V 5600P | |
| C4103 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4104 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4106 | ECEA1CKA220 | ELECTROLYTIC 16V 22 | |
| C4201 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C4202 | ECEA1EKA4R7 | ELECTROLYTIC 25V 4.7 | |
| C4203 | ECEA0JKA330 | ELECTROLYTIC 6.3V 33 | |
| C4204 | ECEA0JKA330 | ELECTROLYTIC 6.3V 33 | |
| C4205 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4206 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4207 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4208 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4209 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C4210 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4211 | ECUV1H153KBN | C CHIP 50V 0.015 | |
| C4212 | ECUV1H153KBN | C CHIP 50V 0.015 | |
| C4213 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4216 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4217 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C4218 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4219 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4227 | ECUV1C224ZFV | C CHIP+80%-20% 16V 0.22 | |
| C4228 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4229 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C4230 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C4451 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4452 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4455 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4456 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4459 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C4901 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4902 | ECEA1HKA2R2 | ELECTROLYTIC 50V 2.2 | |
| C4903 | ECEA1HKA3R3 | ELECTROLYTIC 50V 3.3 | |
| C4904 | ECEA1HKA3R3 | ELECTROLYTIC 50V 3.3 | |
| C4905 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C4906 | ECEA1HKA010 | ELECTROLYTIC 50V 1 | |
| C4911 | ECUV1E223KBN | C CHIP 25V 0.022 | |
| C4912 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4913 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C4917 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4918 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4919 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C4920 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C6001 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6003 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6005 | ECUV1H150JCN | C CHIP+-5% 50V 15P | |
| C6006 | ECUV1H100CCN | C CHIP+-0.25P 50V 10P | |
| C6011 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C6016 | ECEA0JKA331 | ELECTROLYTIC 6.3V 330 | |
| C6019 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C6024 | ECUV1H101JCN | C CHIP+-5% 50V 100P | |
| C6026 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6027 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6033 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| C6201 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6203 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C6208 | ECUV1C104KBN | C CHIP 16V 0.1 | |
| C6214 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6216 | ECUV1H103KBN | C CHIP 50V 0.01 | |
| C6217 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6218 | ECEA1CKA100 | ELECTROLYTIC 16V 10 | |
| C6221 | ECEA0JKA220 | ELECTROLYTIC 6.3V 22 | |
| C6222 | ECUV1H272KBN | C CHIP 50V 2700P | |
| C6223 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C6224 | ECEA0JKA331 | ELECTROLYTIC 6.3V 330 | |
| C6228 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6231 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C6305 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| C6306 | ECA0JM471 | ELECTROLYTIC 6.3V 470 | |
| C6307 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C6315 | ECA1HM101B | ELECTROLYTIC 50V 100 | |
| C7001 | ECEA0JKA101 | ELECTROLYTIC 6.3V 100 | |
| C7010 | ECUV1H102KBN | C CHIP 50V 1000P | |

## FILTERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| FL4901 | LSLF0057 | BAND PASS | |

## COILS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| L1001 | ELF15N005AB | LINE FILTER 0.5A 18M | ⚠ |
| | OR VLQS0166 | LINE FILTER 0.5A 18M | ⚠ |
| | OR VLQS0167 | LINE FILTER 0.5A 18M | ⚠ |
| L1002 | VLQSAB7D220K | 22 | |
| L1003 | VLQSAB7D100K | 10 | |
| L1006 | VLPS0083 | | |
| L3014 | VLQSH02R390K | 39 | |
| L3016 | ELESN330KA | 33 | |
| L3018 | ELESN470KA | 47 | |
| L3101 | ELESN101KA | 100 | |
| L3201 | ELESN101KA | 100 | |
| | ( G ) | | |
| L3202 | ELESN121KA | 120 | |
| | ( G ) | | |
| L3203 | ELEXT220KE04 | 22 | |
| | ( G ) | | |
| L3801 | ELESN101KA | 100 | |
| L3802 | ELESN470KA | 47 | |
| L4001 | ELELN153KA | 15M | |
| L4101 | ELESN471KA | 470 | |
| L4201 | ELESN101KA | 100 | |
| L4451 | ELESN101KA | 100 | |
| L6002 | ELEXT101KE04 | 100 | |
| L6301 | ELESN101KA | 100 | |
| L7001 | VLQSAB7D220K | 22 | |
| L7003 | VLQSH02R101K | 100 | |
| L7005 | VLPS0092 | CHIP | |

## CRYSTAL OSCILLATOR

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| X3010 | VSXS0195 | | |
| X6001 | VSXS0232-TB | | |
| X6301 | EF0EC4004T4 | | |

## PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P1001 | LSJP0807 | CONNECTOR 2P | |
| P3551 | VJPS0882 | CONNECTOR 12P | |
| P4001 | VJSS0888 | FE CONNECTOR 2P | |
| P4451 | LSJP0087 | CONNECTOR 4P | |
| P6201 | LSJP0089 | CONNECTOR 12P | |
| P6202 | LSJP0088 | CONNECTOR 12P | |
| P6320 | VJPS0885 | CONNECTOR 20P | |

## SWITCHES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| SW6001 | LSSH0002 | LEAF SWITCH-SAFETY TAB | |
| SW6002 | LSSS0012 | MODE SELECT SWITCH | |
| SW6306 | EVQ11A09K | PUSH SWITCH | |
| SW6310 | EVQ11A09K | PUSH SWITCH | |
| SW6313 | EVQ11A09K | PUSH SWITCH | |
| SW6314 | EVQ11A09K | PUSH SWITCH | |
| SW6316 | EVQ11A09K | PUSH SWITCH | |

## FUSE& PROTECTOR

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| F1001 | VSFS0003A16 | FUSE 125V 1.6A | ⚠ |
| | OR VSFS0032B16 | FUSE 125V 1.6A | ⚠ |
| | OR XBA1C16NU100 | FUSE 125V 1.6A | ⚠ |
| PR1001 | ICP-N38-TP1 | IC PROTECTOR 1.5A | ⚠ |
| | OR LSSF009A25E | IC PROTECTOR 1.5A | ⚠ |
| | OR UNH000600A | IC PROTECTOR 1.5A | ⚠ |
| PR1002 | ICP-N38-TP1 | IC PROTECTOR 1.5A | ⚠ |
| | OR LSSF009A25E | IC PROTECTOR 1.5A | ⚠ |
| | OR UNH000600A | IC PROTECTOR 1.5A | ⚠ |
| PR1080 | ICP-N38-TP1 | IC PROTECTOR 1.5A | ⚠ |
| | OR LSSF009A25E | IC PROTECTOR 1.5A | ⚠ |
| | OR UNH000600A | IC PROTECTOR 1.5A | ⚠ |

## TRANSFORMER

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| T1001 | LSTP0098 | | ⚠ |
| T4101 | EIQ7QF018Q | | |

## MISCELLANEOUS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| DP6301 | VSZS0131 | DISPLAY TUBE | |
| JK3001 | LSJH0029 | AUDIO/VIDEO JACK SOCKET | |
| E21 | VEQS0614H | TUNER,UHF/VHF NR | |
| E23 | EYF52BC | FUSE HOLDER | |
| E25 | LSGM0002 | DISPLAY TUBE HOLDER | |
| E27 | PNA4611M03KT | INFRARED RECEIVER UNIT | |

## 11.3.3. OPERATION C.B.A. ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC6401 | D17216GT-750 | IC, 4BIT MICROCONTROLLER | E.S.D. |
| | ( E,F,G ) | | |
| IC6403 | MN13821-RTX | IC, LOGIC RESET SIGNAL OUT | E.S.D. |
| | ( E,F,G ) | | |

### TRANSISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| Q6401 | 2SD2191TL2 | | |
| | ( E,F,G ) | | |

### DIODES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| D6401 | LN66ALKT | IR LED | |
| | ( E,F,G ) | | |
| D6402 | LN66ALKT | IR LED | |
| | ( E,F,G ) | | |
| D6403 | LN66ALKT | IR LED | |
| | ( E,F,G ) | | |
| D7801 | MA4051-M | ZENER 5.1V | |
| | OR 04AZ5.1ZTPA7 | ZENER 5.1V | |
| D7802 | MA4051-M | ZENER 5.1V | |
| | OR 04AZ5.1ZTPA7 | ZENER 5.1V | |

### RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R6401 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( E,F,G ) | | |
| R6402 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( E,F,G ) | | |
| R6403 | ERDS2TJ220 | 22 | |
| | ( E,F,G ) | | |
| R6404 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( E,F,G ) | | |
| R6405 | ERJ6GEYJ102V | MGF CHIP 1/10W 1K | |
| | ( E,F,G ) | | |
| R7801 | ERDS2TJ750 | 75 | |

### CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C6401 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| | ( E,F,G ) | | |
| C6402 | ECEA0JKA470 | ELECTROLYTIC 6.3V 47 | |
| | ( E,F,G ) | | |
| C6403 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| | ( E,F,G ) | | |

### CRYSTAL OSCILLATOR

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| X6401 | EF0EC4004T4 | | |
| | ( E,F,G ) | | |

### PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P6302 | VJSS0886 | CONNECTOR 20P | |

### SWITCHES

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| SW6301 | EVQ11G05R | PUSH SWITCH | |
| SW6302 | EVQ11G05R | PUSH SWITCH | |
| SW6303 | EVQ11G05R | PUSH SWITCH | |
| SW6304 | EVQ11G05R | PUSH SWITCH | |

### JACKS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| JK7801 | VJHS0734 | FRONT AUDIO/VIDEO JACK SOCKET | |
| | ( A,B,C,D ) | | |
| | VJHS0736 | FRONT AUDIO/VIDEO JACK SOCKET | |
| | ( E,F,G ) | | |

### MISCELLANEOUS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E34 | VMXS0575 | LED SPACER | |
| | ( E,F,G ) | | |
| E35 | VGMS0611 | LED HOLDER | |
| | ( E,F,G ) | | |

## 11.3.4. CAPSTAN STATOR C.B.A. NR ( A,B,C,D ) ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC2501 | AN3846SC | IC, LINEAR CAP./LOADING DRIVE | |
| | OR AN3845SC | IC, LINEAR CAP./LOADING DRIVE | |

### RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R2501 | ERJ8GEYJ1R0Z | MGF CHIP 1/8W 1 | |
| R2502 | ERJ8GEYJ1R0Z | MGF CHIP 1/8W 1 | |
| R2505 | ERJ6GEYJ222V | MGF CHIP 1/10W 2.2K | |

### CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C2504 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2506 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2507 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2508 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2509 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2510 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2511 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2517 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2519 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C2520 | ECUV1C225ZFN | C CHIP+80%-20% 16V 2.2 | |
| C2521 | ECUV1C225ZFN | C CHIP+80%-20% 16V 2.2 | |
| C2522 | ECUV1C225ZFN | C CHIP+80%-20% 16V 2.2 | |

### PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P2503 | VJSS3337 | CONNECTOR 2P | |

### MISCELLANEOUS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E127 | XQN2+B35 | SCREW,STEEL | |
| E128 | XYN2+J7 | SCREW WITH WASHER | |
| E129 | LSMA0384 | BACK PLATE,STEEL | |
| E130(IC2505) | EZMPS300F12 | MR HEAD | |
| E131(P2502) | LSJS0097 | CONNECOR 12P | |

## 11.3.5. CAPSTAN STATOR C.B.A. NR ( E,F,G ) ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC2501 | AN3846SC | IC, LINEAR CAP./LOADING DRIVE | |

### RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R2501 | ERJ14YJ1R0U | MGF CHIP 1 | |
| R2502 | ERJ14YJ1R0U | MGF CHIP 1 | |
| R2505 | ERJ6GEYJ242V | MGF CHIP 1/10W 2.4K | |

### CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C2504 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2506 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2507 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C2508 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2509 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2510 | ECUV1E104KBN | C CHIP 25V 0.1 | |
| C2511 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C2517 | VCUSQAE225ZF | C CHIP+80%-20% 25V 2.2 | |
| C2519 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C2520 | ECUV1E225ZFM | C CHIP+80%-20% 25V 2.2 | |
| C2521 | ECUV1E225ZFM | C CHIP+80%-20% 25V 2.2 | |
| C2522 | ECUV1E225ZFM | C CHIP+80%-20% 25V 2.2 | |

### PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P2503 | VJSS3337 | CONNECTOR 2P | |

### MISCELLANEOUS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E127 | XQN2+B35 | SCREW,STEEL | |
| E128 | XYN2+J7 | SCREW WITH WASHER | |
| E129 | LSMA0385 | BACK PLATE,STEEL | |
| E130(IC2505) | EZMPS300F12 | MR HEAD | |
| E131(P2502) | LSJS0097 | CONNECOR 12P | |

## 11.3.6. Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. ■

### INTEGRATED CIRCUITS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| IC3501 | AN3361SB | IC, LINEAR HEAD AMP | |

### RESISTORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| R3501 | ERJ6GEYJ473V | MGF CHIP 1/10W 47K | |
| R3502 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3503 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3504 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3505 | ERJ6GEYJ560V | MGF CHIP 1/10W 56 | |
| R3506 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |
| R3507 | ERJ6GEYJ561V | MGF CHIP 1/10W 560 | |

### CAPACITORS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| C3504 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3505 | ECEA1CKA470 | ELECTROLYTIC 16V 47 | |
| C3506 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3507 | ECUV1H102KBN | C CHIP 50V 1000P | |
| C3508 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3511 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3512 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3513 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3519 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| C3520 | ECUV1H104ZFN | C CHIP+80%-20% 50V 0.1 | |
| C3523 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3524 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3528 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3529 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |
| C3532 | ECUV1E104ZFN | C CHIP+80%-20% 25V 0.1 | |
| C3533 | ECUV1H103ZFN | C CHIP+80%-20% 50V 0.01 | |

### COILS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| L3501 | ELESN101KA | 100 | |

### PIN HEADERS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| P2601 | LSJS0096 | CONNECTOR 12P | |
| P3501 | VJSS0883 | CONNECTOR 12P | |
| P4091 | LSJWM6N085AC | CONNECTOR CABLE W/OUT PLUG,40V P-P | |
| P4401 | LSJS0095 | CONNECTOR 4P | |

## 11.3.7. ELECTRICAL PARTS LOCATED ON CHASSIS

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E22 | LSJA0267 | AC CORD W/PLUG,125V | ⚠ |
| | OR LSJA0268 | AC CORD W/PLUG,125V | ⚠ |
| | OR LSJA0269 | AC CORD W/PLUG,125V | ⚠ |
| | OR LSJA0270 | AC CORD W/PLUG,125V | ⚠ |
| | OR LSJA0281 | AC CORD W/PLUG,125V | ⚠ |

## 11.3.8. SUMMARY OF "E" ITEM NUMBERS

**REFER TO ELECTRICAL PARTS LIST FOR MODEL INFORMATION**

| Ref. No. | Part No. | Part Name& Description | Remarks |
|---|---|---|---|
| E1 | VEPS6062HA | MAIN C.B.A. | RTL |
| E1 | VEPS6062HB | MAIN C.B.A. | RTL |
| E1 | VEPS6062HC | MAIN C.B.A. | RTL |
| E1 | VEPS6063HA | MAIN C.B.A. | RTL |
| E1 | VEPS6063HB | MAIN C.B.A. | RTL |
| E1 | VEPS6063HC | MAIN C.B.A. | RTL |
| E4 | VEPS8057B | OPERATION C.B.A. | RTL |
| E4 | VEPS8057C | OPERATION C.B.A. | RTL |
| E6 | VEPS5032A | Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. | RTL |
| E21 | VEQS0614H | TUNER,UHF/VHF NR | |
| E23 | EYF52BC | FUSE HOLDER | |
| E25 | LSGM0002 | DISPLAY TUBE HOLDER | |
| E27 | PNA4611M03KT | INFRARED RECEIVER UNIT | |
| E22 | LSJA0267 | AC CORD W/PLUG,125V | ⚠ |
| E22 | LSJA0268 | AC CORD W/PLUG,125V | ⚠ |
| E22 | LSJA0269 | AC CORD W/PLUG,125V | ⚠ |
| E22 | LSJA0270 | AC CORD W/PLUG,125V | ⚠ |
| E22 | LSJA0281 | AC CORD W/PLUG,125V | ⚠ |
| E34 | VMXS0575 | LED SPACER | |
| E35 | VGMS0611 | LED HOLDER | |
| E126 | VEMS0331 | CAPSTAN STATOR C.B.A. NR | |
| E126 | VEMS0333 | CAPSTAN STATOR C.B.A. NR | |
| E127 | XQN2+B35 | SCREW,STEEL | |
| E128 | XYN2+J7 | SCREW WITH WASHER | |
| E129 | LSMA0384 | BACK PLATE,STEEL | |
| E129 | LSMA0385 | BACK PLATE,STEEL | |
| E130(IC2505) | EZMPS300F12 | MR HEAD | |
| E131(P2502) | LSJS0097 | CONNECOR 12P | |

# MAIN C.B.A. VEPS6062HB (A) / VEPS6062HA (B) / VEPS6062HC (C, D)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

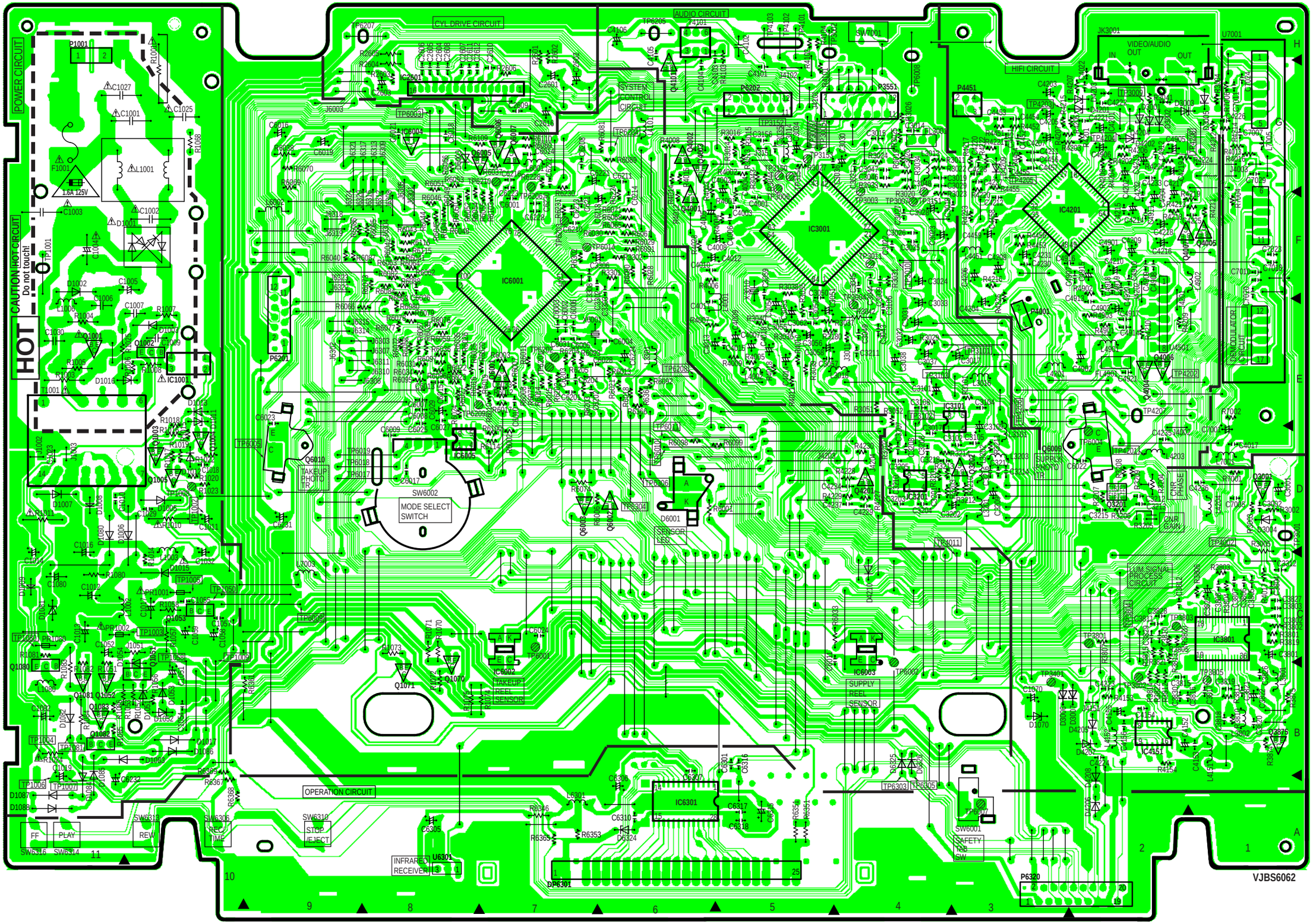
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

**HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.**




COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |

# MAIN C.B.A. VEPS6063HA (E) / VEPS6063HC (F) / VEPS6063HB (G)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

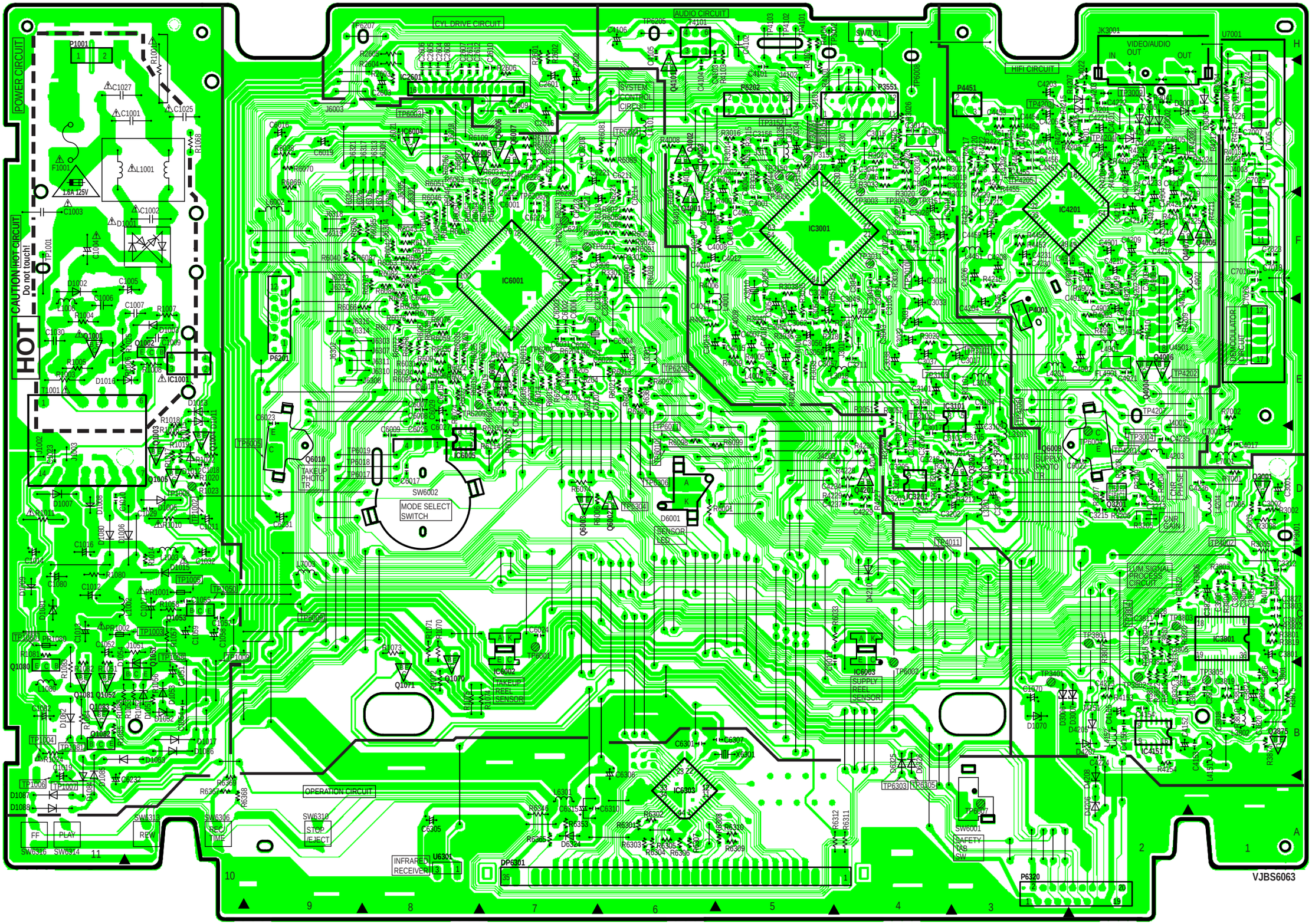
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

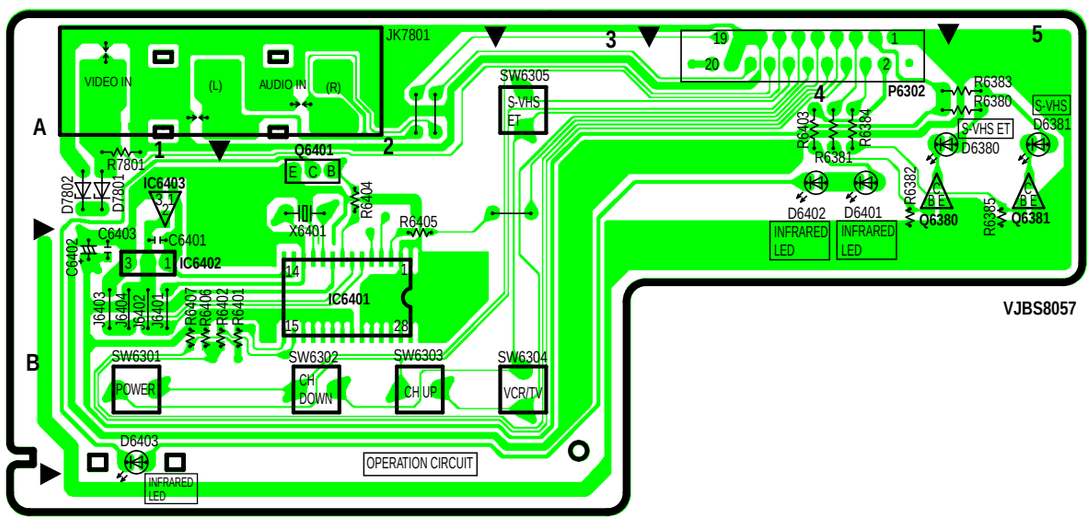
**HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.**




COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |

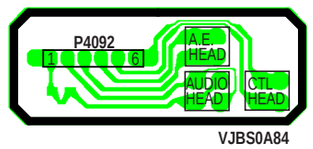
## OPERATION C.B.A. VEPS8057B (A, B, C, D) / VEPS8057C (E, F, G)




NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

## AUDIO CONTROL HEAD P.C.B.




COMPARISON CHART
OF MODELS & MARKS

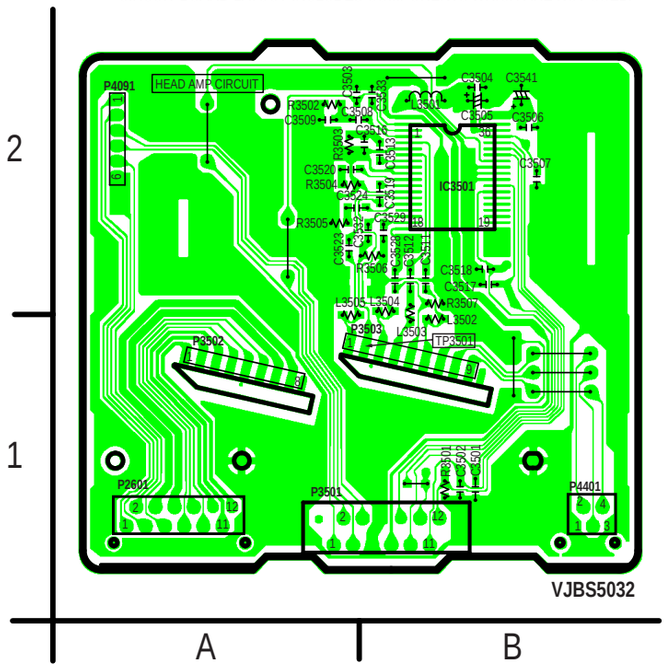
| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

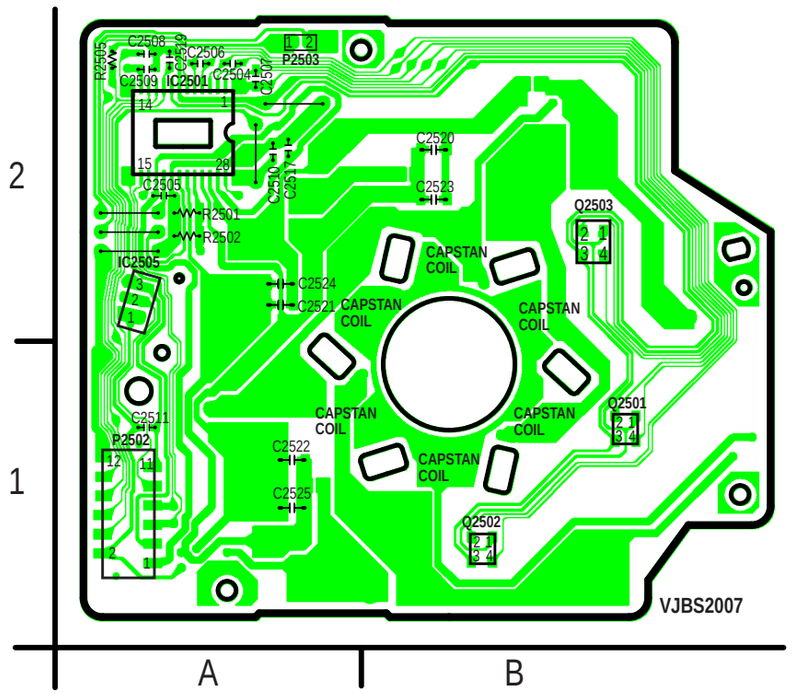
## Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. VEPS5032A

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.




## CAPSTAN STATOR C.B.A. VEMS0331 (A, B, C, D) / VEMS0333 (E, F, G)




NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

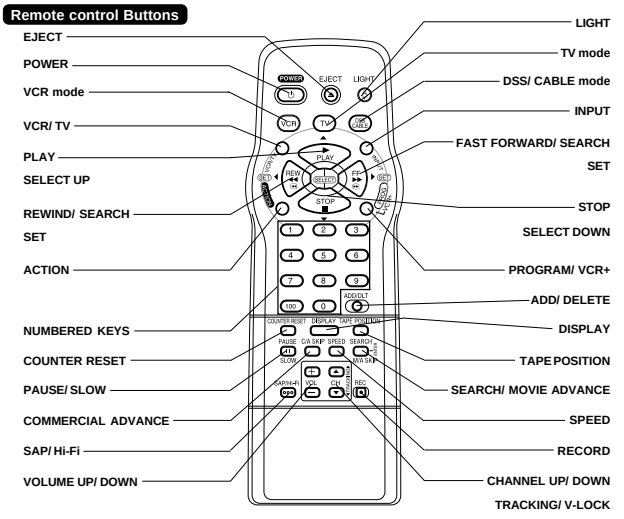
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
WHEN INSTALLING THE IC2501(AN3845SC OR AN3846SC) OR CAPSTAN STATOR C.B.A.,
BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.
(Q2501, Q2502, Q2503, CAPSTAN COIL)

# Location of Controls

## Remote control Buttons

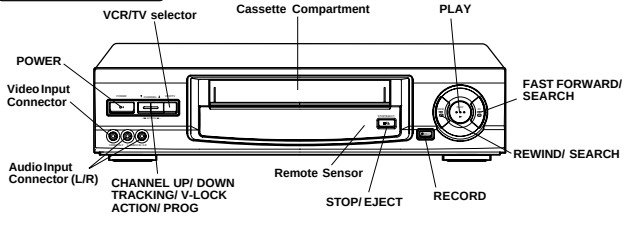



**Light Tower Universal Remote Control**

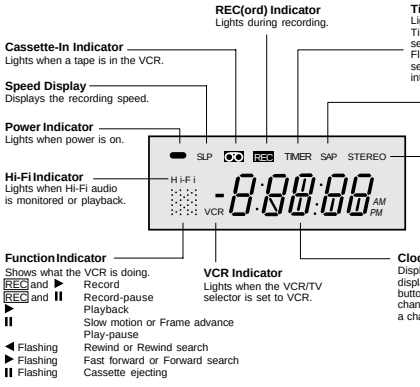
**Light button:** When the LIGHT button is pressed, the buttons which can be activated in the selected mode will light and the selected mode button (TV/VCR or CABLE DSS) will flash for 5 seconds. If no buttons are pressed within 5 seconds, the light will turn off in order to conserve battery power. Also while holding down the buttons, the selected mode button will flash so you will be able to see, in the dark, which mode has been selected.

**EJECT button:** When EJECT is pressed, the tape is ejected from Cassette Compartment. If EJECT is pressed during recording, the VCR will not respond to the command.

## Front View of the VCR

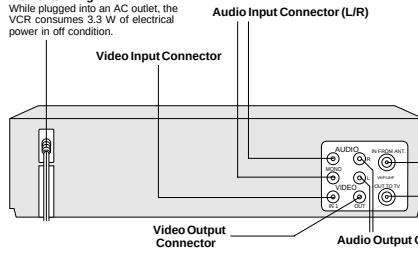



## Multi Function Display


REC(ord) Indicator
Lights during recording.
Timer Indicator
Lights when the VCR is set for a Timer Recording, or when a length is set for a normal recording (OTR). Flashes when a Timer Recording is set, but a tape has not been inserted into the VCR.
Cassette-In Indicator
Lights when a tape is in the VCR.
Speed Display
Displays the recording speed.
SAP Indicator
Lights when the station you are tuned to is broadcasting SAP.
Power Indicator
Lights when power is on.
SLP
REC
TIMER
SAP
STEREO
STEREO Indicator
Lights when the station you are tuned to is broadcasting stereo.
Hi-Fi Indicator
Lights when Hi-Fi audio is monitored or playback.
Hi-Fi
VCR
AM
PM
Function Indicator
Shows what the VCR is doing.
REC and ▶ Record
REC and ❚❚ Record-pause
▶ Playback
❚❚ Slow motion or Frame advance
Play-pause
◀ Flashing Rewind or Rewind search
▶ Flashing Fast forward or Forward search
❚❚ Flashing Cassette ejecting
VCR Indicator
Lights when the VCR/TV selector is set to VCR.
Clock/ Status/ Channel Display
Displays the current time. Briefly displays VCR status when a function button is pressed. Briefly displays the channel number, or "L1" or "L2" when a channel or line input is selected.

## Rear View of the VCR

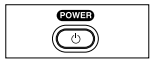
**AC Power Plug**
While plugged into an AC outlet, the VCR consumes 3.3 W of electrical power in off condition.




# One Time VCR Setup

**When VCR is turned on the first time,**
setup mode is entered automatically.

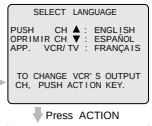
**Process of Setup**
Language ⇨ Channel ⇨ Clock

**1** 

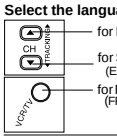
**Turn the TV and VCR on.**
Press POWER*.
Set TV Channel to CH 3.
• If using AV Cable connection, set TV to Video instead of channel.

**Display SELECT LANGUAGE.**
This display appears for first time setup only.

**2**

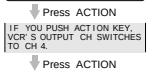



**Select the language.**

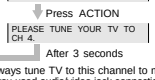



for English
for Spanish (ESPAÑOL)
for French (FRANÇAIS)

Press ACTION



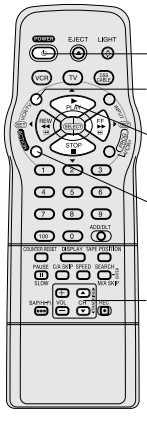

Press ACTION



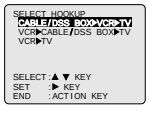

After 3 seconds

**When using connection b), tune TV to VCR's output channel.**
If there is beat or noise on CH3, change VCR's output channel to CH4 by pressing ACTION twice.

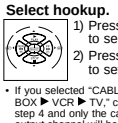
• Always tune TV to this channel to monitor the VCR.
• If you used audio/video jack connection, tune the TV to its video input.
• If wrong language is set, do "Reset All VCR Memory Functions" steps.




**3**



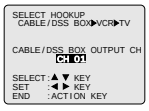

**Select hookup.**



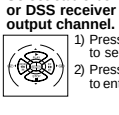

1) Press ▲▼ to select.
2) Press ▶ to set.

• If you selected "CABLE/ DSS BOX ▶ VCR ▶ TV," continue with step 4 and only the cable box output channel will be placed in memory.
If not, go to step 6.

**4**




**Select cable box or DSS receiver output channel.**

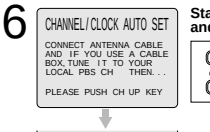


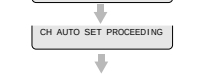

1) Press ▲▼ to select.
2) Press ▶ to enter.

• If necessary, refer to cable box manual.
• If you used Audio/ Video jack connection to cable box, set "VIDEO OUT".

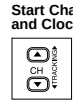
**5** **Turn on cable box and set it to PBS channel in your time zone.**
• If you use DSS receiver, it must be turned off.

**6**


CHANNEL/CLOCK AUTO SET
CONNECT ANTENNA CABLE AND IF YOU USE A CABLE BOX, TUNE IT TO YOUR LOCAL PBS CH THEN. . .
PLEASE PUSH CH UP KEY



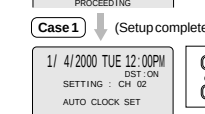
**Start Channel Auto Set and Clock Auto Set.**

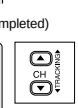



Press CH ▲.

**IMPORTANT NOTE FOR AUTO CLOCK SET**
- Auto clock set is performed the first time the VCR is turned off each day. If used, a cable box must be left on and tuned to the PBS channel at the time VCR power is turned off if you want auto clock set to be done.
- If used, a DSS receiver must be turned off for auto clock set.
- If Cable Box or DSS receiver is connected to VCR via Audio/Video jacks, an RF coaxial cable must also be connected for auto clock set and channel auto set features to work.

**Case 1** (Setup completed)

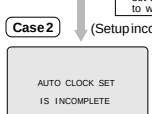



Press CH ▲ to exit.

• If your area observes DST (daylight saving time), but the time is incorrect; do the "Time Zone Adjust" steps.

**Case 2** (Setup incomplete)




**Clock Setup incomplete.**
**Set the clock manually.**

1) Press ACTION.

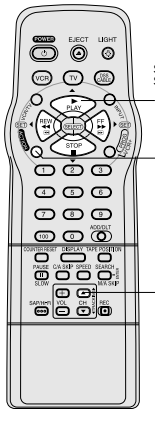
2) Press ▲▼ to select month.
3) Press ▶ to set.

• Likewise, set date, year, time, DST (Daylight Saving Time).

**To Make Corrections,** repeatedly press ◀ ▶ to move to error, then correct.

4) Press ACTION. (Clock starts.)
• To exit this mode, press ACTION again.

**Notes**
- VCR calendar is accurately maintained to Dec. 31, 2096 11:59PM.
- Channel auto set selects normal TV or Cable channels depending on your VCR hookup.
- To reset Language, Channels, Clock or VCR's Output Channel.




**Using ▲▼◀▶ keys**
You can also operate the menu screen using VCR buttons.
When menu screens are displayed, the PLAY, STOP, REWIND, and FF buttons on the VCR and remote function as ▲▼◀▶ only with no tape inserted.

**To display menu using VCR buttons,** press CH ▲ and CH ▼ together.
To exit the menu, repeat above.

▲ : PLAY ◀ : REW
▼ : STOP ▶ : FF

# Timer Recording Using VCR Plus+® System

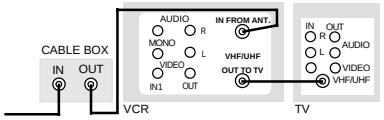
**VCR Plus+ System is ...**
a feature that allows you to set **most items** of a timer recording by simply entering a special code number (PlusCode programming number) found in TV GUIDE and selected newspaper TV listings.

**Process of Recording**
Connection ⇨ Setup ⇨ Programming

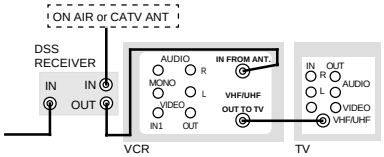
Find the type of connection you use from the following diagrams and proceed to the page number indicated to begin set up.

### A

**Cable box ➡ VCR ➡ TV connection**



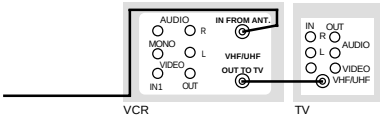

**DSS box ➡ VCR ➡ TV connection**



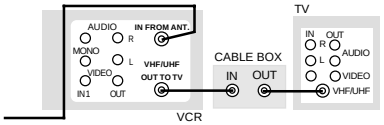

**Note: You can not operate "Auto VCR Plus+ System Channel Setup" if type A connection is used.**

### B

**VCR ➡ TV connection**




**VCR ➡ Cable box ➡ TV connection**




## Cable Box Setup

**Process of Recording**
Connection ⇨ Setup ⇨ Programming

**1** **Display MENU.**
Press ACTION.*

**2** **Select SET UP CHANNEL.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
SET UP VCR
SET UP FEATURE
SET CLOCK
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
VCR'S OUTPUT CH:3
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Select CABLE/DSS BOX SET UP.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
SET UP CHANNEL
ANTENNA : CABLE
AUTO SET
CHANNEL CAPTION
WEAK SIGNAL DISPLAY : OFF
CABLE/DSS BOX SET UP
VCR Plus+ CH SET UP
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**4** **Select your hookup method.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
SELECT HOOKUP
CABLE/DSS BOX▶VCR▶TV
VCR▶CABLE/DSS BOX▶TV
VCR▶TV
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

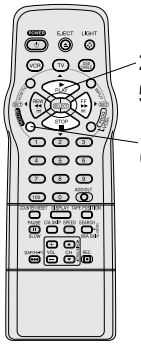
- If CABLE/DSS BOX ▶VCR ▶TV, go to step 5.

**5** **Select cable box or DSS receiver output channel.**
1) Press ▲▼ to select.
2) Press ▶ to enter.

```
SELECT HOOKUP
CABLE/DSS BOX▶VCR▶TV
CABLE/DSS BOX OUTPUT CH
CH 01
SELECT:▲▼ KEY
SET   :◀▶ KEY
END   :ACTION KEY
```

- If necessary, refer to your Cable Box/DSS manual.
- If you are using Audio/Video jack connections, select and set "VIDEO OUT" as output channel.

**6** **End setup.**
Press ACTION twice.

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# Timer Recording Using VCR Plus+ System (continued)

## Auto VCR Plus+ System Channel Setup (Part 1)

In order for VCR to read VCR Plus+ code, some set up is required. Guide (VCR Plus+) channel number is assigned to each local broadcast and cable station. Because this number sometimes differs from channel TV receives station on, it is necessary to program the VCR with local channel information. To receive VCR Plus+ channels automatically, perform the steps below. Or, see "Manual VCR Plus+ System Channel Setup" section.

**Process of Recording**
Connection ⇨ Setup ⇨ Programming

**Important Note**
- **The "One Time VCR Setup" section must be completed before the "Auto VCR Plus+ System Channel Setup" section can be done. If any part of the setup is not completed, a warning screen appears.**
- **If your VCR connection type changes from type A to B, repeat steps 1~4 of Cable Box Setup and select VCR ▶CABLE/DSS▶ TV before proceeding with these steps.**
- **Complete this page only if type B connection is used.**

**1** **Display MENU.**
Press ACTION.*

**2** **Display SET UP CHANNEL.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
SET UP VCR
SET UP FEATURE
SET CLOCK
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
VCR'S OUTPUT CH:3
SELECT:▲▼ KEY
SET   :▶ KEY
```

**3** **Display VCR Plus+ CH SET UP.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
SET UP CHANNEL
ANTENNA : CABLE
AUTO SET
CHANNEL CAPTION
WEAK SIGNAL DISPLAY : OFF
CABLE/DSS BOX SET UP
VCR Plus+ CH SET UP
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**4** **Select AUTO SET.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
VCR Plus+ CH SET UP
AUTO SET
MANUAL SET
SELECT:▲▼ KEY
SET   :▶ KEY
```

**5** **Enter Zip Code.**
1) Press ▲▼◀▶ to select and enter each number.
2) Press ▶ or ACTION to set.

```
VCR Plus+ CH SET UP
PLEASE ENTER ZIP CODE
ZIP CODE: ■----
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

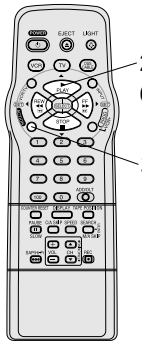
**6** **Select Update Frequency.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
PLEASE SELECT HOW OFTEN TO UPDATE
RIGHT NOW
EVERY NIGHT
EVERY MONDAY NIGHT
```

**7** **End setup.**
Press ACTION.

```
VCR Plus+ CH SET UP
PLEASE LEAVE VCR OFF (OVERNIGHT)
END   :ACTION KEY
```

- Make sure to leave VCR off (overnight.).




**Notes**
- Make each entry within 5 minutes or VCR will leave this mode.
- Once local channels have been programmed, they will stay in memory, even in the case of a power failure.
- "SET" will flash on Multi Function Display during Auto VCR Plus+ System Setup.
- If the start time for a timer recording comes up during Auto VCR Plus+ System Setup, the timer recording will have priority.

## Auto VCR Plus+ System Channel Setup (Part 2)

**Before you perform the following steps, you should have:**
- **completed "Auto VCR Plus+ System Channel Setup (Part 1)".**
- **left VCR off overnight, and turned it back on after 9:00 AM the next day.**

**1** If channel updating was successful...

```
VCR Plus+ CH SET UP
VCR Plus+ CH SET COMPLETED
END   :ACTION KEY
```

**Exit this mode.**
Press ACTION.

If VCR could not distinguish channel map...

```
VCR Plus+ CH SET UP
PLEASE SELECT VCR Plus+ CHANNEL
NEXT  :ACTION KEY
```

**Display SELECT VCR Plus+ CH.**
1) Press ACTION to display.
2) Continue with step 2.

**2** **Select channel map for your area.**
1) Press ▲▼◀▶ to select.
2) Press ADD/DLT to set.

```
SELECT VCR Plus+ CH
KMEX KCAL KWHY KVCR ▶
12  33  24  18
51  42  18  33
 1   5  10   7
101 99 110  78
SELECT:▲▼▶ KEY
SET   :ADD/DLT KEY
END   :ACTION KEY
```

**3** **End Setup.**
Press ACTION.

```
VCR Plus+ CH SET UP
PLEASE LEAVE VCR OFF (OVERNIGHT)
END   :ACTION KEY
```

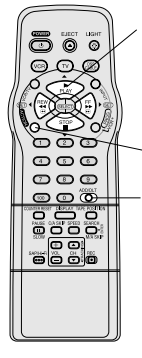
- Make sure to leave VCR off (overnight.).

Channel map will be updated overnight
If it was successful, "VCR Plus+ CH SET COMPLETED" appears on screen. And then, press ACTION to exit.

**Repeat these steps as necessary.**

**If Auto Setup fails, do "Manual VCR Plus+ System Channel Setup" section.**

**Process of Recording**
Connection ⇨ Setup ⇨ Programming




### To Change or Update Auto VCR Plus+ System Channel Setup

(E.g. you selected the wrong channel map, or your zip code channel.)

**a** Do "Auto VCR Plus+ System Channel Setup (Part 1)" steps 1~4.

```
VCR Plus+ CH SET UP
UPDATE VCR Plus+ CH
SELECT VCR Plus+ CH
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**b** Press ▲▼ to select UPDATE VCR Plus+ or SELECT VCR Plus+ CH, then press ▶.

**c** If you selected UPDATE VCR Plus+ CH, perform steps 5~7 in the "Auto VCR Plus+ System Channel Setup (Part 1)" section.
If you selected SELECT VCR Plus+ CH, perform steps 2~3 in the "Auto VCR Plus+ System Channel Setup (Part 2)" section on this page.

# Timer Recording using VCR Plus+ System (continued)

## Manual VCR Plus+ System Channel Setup

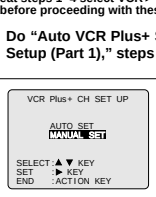
- **Before you begin, complete "Channel Setup Preparations" below right.**

Important Note

- **If your VCR connection type changes from type A to B, repeat steps 1~4 select VCR► CABLE/DSS► TV before proceeding with these steps.**

**1** **Do "Auto VCR Plus+ System Channel Setup (Part 1)," steps 1~3.**

**2**

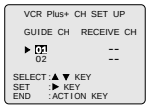



**Select MANUAL SET.**

1) Press ▲▼ to select.
2) Press ▶ to set.

**IMPORTANT NOTE:**
**For step 3, use the list you prepared. You may leave lines blank if you don't receive that station, or if the GUIDE CH number and the RECEIVE CH numbers are the same.**

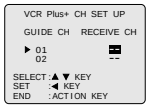
**3**




**Select VCR Plus+ channels.**

1) Press ▶ to move cursor to right column.
2) Press ▲▼ to change RECEIVE CH number.
3) Press ◀ to set.
4) Press ▲▼ to scroll up/down GUIDE CH column.

- Repeat step 3 until list is complete.




**To make corrections,**
Press ▲▼ and ▶ to move to error, then ▲▼ to change, or ADD/DLT* to erase number.

**4**

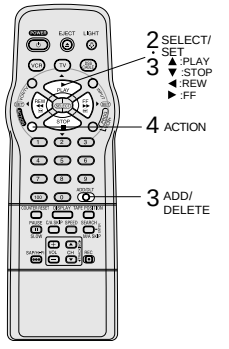
**End setup.**
Press ACTION three times.

**Notes**

- Make each entry within 5 minutes or the VCR will exit this mode.
- Once local channels have been programmed, they will stay in memory, even in the case of a power failure.

### Process of Recording

Connection ⇨ Setup ⇨ Programming




### Channel Setup Preparations

**In order to complete step 3 left, make a local channel list (see example below).**

You will need the following:

- A line up of normal TV and/ or Cable stations and the channel number you receive them on.
- A list of Guide (VCR Plus+) channel numbers for the stations you receive found in TV Guide and selected newspapers.

**1** Make a 3-column chart. In the left column, write the name of all the stations you receive.

**2** In the middle column, write each station's Guide (VCR Plus+) number from TV Guide.

**3** In the right column, write the channel number your TV receives the station on.

EXAMPLE ONLY

| Broadcast or Cable Station Name | Assigned Guide (VCR Plus+) channel no. | Channel no. your TV receives the station on |
|---|---|---|
| HBO | 33 | 15 |
| Nickelodeon | 38 | 20 |
| CBS | 04 | 04 |
| FOX | 11 | |

**Check list before you begin.**

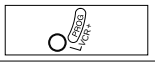
- ☐ The clock is set.
- ☐ VCR Plus+ System Setup is complete.

### Process of Recording

Connection ⇨ Setup ⇨ Programming

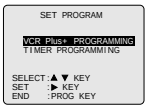
## VCR Plus+ System Programing

**1**




**Display SET PROGRAM.**
Press PROG/VCR+.*

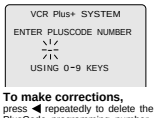
**2**



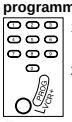

**Display VCR Plus+ screen.**

1) Press ▲▼ to select.
2) Press ▶ to display.

**3**

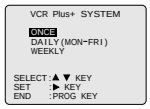



**Enter PlusCode programming number.**



1) Press Numbered keys.
2) Press PROG/ VCR+ to lock in the program.

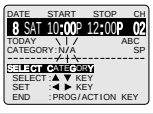
**To make corrections,**
press ◀ repeatedly to delete the PlusCode programming number.




**Enter record frequency.**

1) Press ▲▼ to select program type.
2) Press ▶ to set.

**4**




**Select Category.****

1) Press ▲▼ to change.
2) Press ▶ to set.

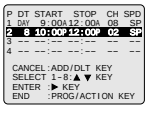
**Change record speed.**
Repeat 1) and 2).

** Category Items
N/A(not applicable), SPORTS, MOVIE, COMEDY, MUSIC, DRAMA

**5** **Make notes.**

- If not wanted, go to step 6.

**6**


P DT START STOP CH SPD
1 SAT 9:00A 12:00A 08 SP
2 8 10:00P 12:00P 02 SP
3 -- --:-- --:-- -- --
4 -- --:-- --:-- -- --
CANCEL:ADD/DLT KEY
SELECT:1-8,▲▼ KEY
ENTER :▶ KEY
END :PROG/ACTION KEY

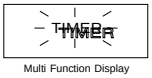
**End programming.**

1) Press PROG/VCR+ (or ACTION).

**To cancel**
press ADD/DLT.

2) Press PROG/VCR+ (or ACTION) again to exit.

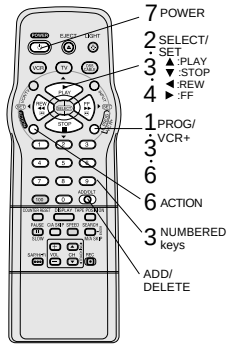
**7**




Multi Function Display

**Set timer.**

Press POWER off.




**Use normal Timer Recording steps if:**

- the PlusCode programming number for a program is not listed.
- you anticipate the program, such as a sporting event, to run over the scheduled stop time.
- cancel a timer recording in progress.
- replace program contents.
- review or clear program contents once set.

**Important notes for DSS/Cable Box users**

- When recording via DSS, the receiver, must be left on.
- When recording via cable or antenna, DSS receiver must be off.

**Notes**

- Avoid overlapping program times.
- You can obtain unlisted PlusCode numbers by calling 1 - 900 - 454 - 7587. Call costs approximately $.95 per minute.

# Tape Operation

## COMMERCIAL▸▸ADVANCE®

COMMERCIAL▸▸ADVANCE® detects and marks the beginning and end points of commercials on your tape for recordings over 15 minutes in length. When COMMERCIAL▸▸ADVANCE® marked tape is played back, the VCR automatically advances through the commercial segments at high speed. You can also set this feature to Manual so as to have more control over the advance process. The effectiveness of this system can vary due to differences in the way television stations broadcast.

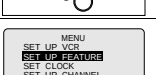
**Check list before you begin.**

- ☐ All connections are made.
- ☐ One time Setup completed.
- ☐ VCR is plugged in.
- ☐ TV is turned on and set to CH3, 4 or Video on TV.

## COMMERCIAL▸▸ADVANCE® Marking

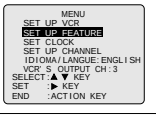
When C/A RECORD: ON, VCR automatically rewinds the tape after a recording has been made and marks the beginning and end of any detected commercial blocks. After marking is done, the tape is returned to the end of recording. Commercials are not erased from the tape.

**1**




**Display MENU.**
Press ACTION.*

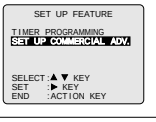
**2**




**Display SET UP FEATURE.**

1) Press ▲▼ to select.
2) Press ▶ to display.

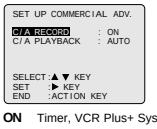
**3**




**Display SET UP COMMERCIAL ADV.**

1) Press ▲▼ to select.
2) Press ▶ to display.

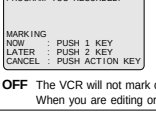
**4**




**Set ON or OFF.**

1) Press ▲▼ to select.
2) Press ▶ to set.

**ON** Timer, VCR Plus+ System, and One Touch recordings are marked automatically.


THE VCR IS WAITING TO MARK COMMERCIALS IN THE PROGRAM YOU RECORDED.
MARKING
NOW : PUSH 1 KEY
LATER : PUSH 2 KEY
CANCEL : PUSH ACTION KEY

When STOP is pressed during normal recording, Select One of a) or b) or c).

a) Press 1 key to mark the recording now.
"NOW MARKING COMMERCIALS" appears.

b) Press 2 key to mark the recording later (after the power has been turned off).

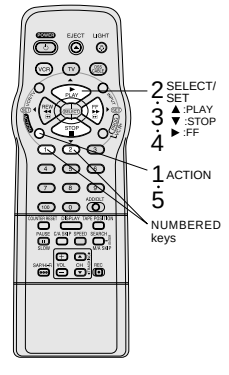
- If the tape is rewound and another recording started before the power is turned off, commercials may not be marked correctly.

c) Press ACTION to cancel the marking of this recording.

**OFF** The VCR will not mark commercials.
When you are editing or dubbing a tape, or when you do not wish to use this feature, off should be selected.

**5**

**Return to normal screen.**
Press ACTION three times.



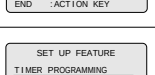

**Note**

- When using the timer to record two adjacent shows on the same channel, better accuracy can be obtained by programming each shows separately.

## COMMERCIAL▸▸ADVANCE® Playback

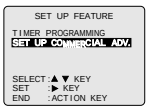
When playing back recording which have been marked using COMMERCIAL▸▸ADVANCE® feature, you can either set VCR to automatically advance through marked commercial blocks, or set it so that commercials are only skipped on your command.

**1**




**Display MENU.**
Press ACTION.*

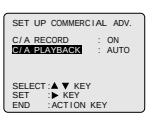
**2**



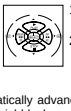

**Display SET UP FEATURE.**

1) Press ▲▼ to select.
2) Press ▶ to set.

**3**

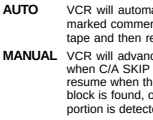



**Display SET UP COMMERCIAL ADV.**



1) Press ▲▼ to select.
2) Press ▶ to set.

**4**

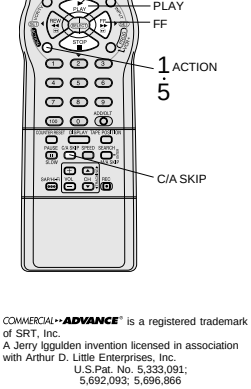



**Set AUTO or MANUAL.**

1) Press ▲▼ to select.
2) Press ▶ to set.

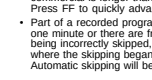
**AUTO** VCR will automatically advance through marked commercial blocks recorded on the tape and then resume playback.

**MANUAL** VCR will advance through commercials only when C/A SKIP is pressed. Playback will resume when the end mark of a commercial block is found, or a new recording or blank portion is detected, or after 8 minutes.




COMMERCIAL▸▸ADVANCE® is a registered trademark of SRT, Inc.
A Jerry Iggulden invention licensed in association with Arthur D. Little Enterprises, Inc.
U.S.Pat. No. 5,333,091; 5,692,093; 5,696,866 other patents pending

**5**




**Return to normal screen.**
Press ACTION three times.

**Notes**

- The selection mode in step 4 remains set unless there is a power outage in which case the original factory setting will be restored.
- If playback is started in the middle of a commercial, only a single commercial is shown, or an individual commercial is longer than 1 minute, a commercial may not be skipped. Press FF to quickly advance through the commercial.
- Part of a recorded program may be skipped over if the program portion between commercials is less than one minute or there are frequent dark and quiet scenes during the program. To view the portion of tape being incorrectly skipped, press PLAY while the VCR is skipping, reverse the tape to a point just prior to where the skipping began and press PLAY again. This time the group will not be automatically skipped. Automatic skipping will be re-enabled when the end of the marked group is detected.

# Tape Operation (continued)

The most commonly asked questions about COMMERCIAL ADVANCE® are answered below.

| Question | Answer |
|---|---|
| How fast does the VCR advance through commercials? | The VCR advances through a 3-minute commercial block in about 8 to 12 seconds if the tape speed is SLP. In SP, it takes about 25 to 35 seconds. |
| Are commercials advanced through only when I playback a recording? | Yes. The commercials are not marked until after the recording is finished. |
| Are commercials still recorded on the tape in case I choose to view them sometime? | Yes. By setting the C/A PLAYBACK to MANUAL, you can view or advance through commercials as desired. |
| Does COMMERCIAL ADVANCE® work in all recording speeds? | Yes. COMMERCIAL ADVANCE® works in SP, LP, and SLP. |
| Does the VCR advance through commercials each time I playback tapes which were recorded using COMMERCIAL ADVANCE®? | Yes. As long as C/A PLAYBACK is set to AUTO, the VCR should advance through commercials each time the tape is played back. |
| After marking commercials, does the VCR stop at the end of the tape, or rewind to the beginning? | The tape stops at the end of the recording so that any additional timer recordings can be performed. |
| Can I play my COMMERCIAL ADVANCE® recordings in non-COMMERCIAL ADVANCE® VCRs? | Yes. COMMERCIAL ADVANCE® marked recordings will play in non-COMMERCIAL ADVANCE® VCRs, but commercials will not be advanced through. |
| Does the marking process interfere with other programmed recordings? | No. If the interval between 2 or more timer programs is not sufficient to mark the recording, marking will be done after all recordings are complete and the power goes off. |
| What happens if I cancel the marking in progress so I can use the VCR? | Marking will be resumed when the VCR's power is turned off as long as the tape has not been ejected. |
| What if part of my program is advanced through along with the commercials? | Please see the 3rd note on previous section. |

Additional Notes:

- Because of the various ways in which commercials are broadcast, the VCR may not be able to recognize all commercials.
- If a timer recording is scheduled for the middle of the night, please be aware that the VCR will make some noise as it rewinds and fast forwards the tape while marking commercials.

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A Jerry Iggulden invention licensed in association with Arthur D. Little Enterprises, Inc.

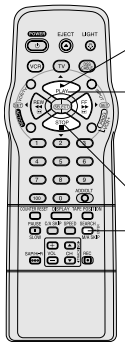
U.S.Pat. No. 5,333,091;
5,962,093; 5,696,866
other patents pending

## MOVIE ADVANCE®

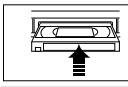
MOVIE ADVANCE® helps you locate certain parts of prerecorded movies (rented or purchased).
The feature works in two ways.
- You can go to the beginning of the movie.
- You can skip from one preview to the next.

MOVIE ADVANCE® works only on cassette recorded in SP speed with the record tab removed.

**Check list before you begin.**
- ☐ All connections are made.
- ☐ One time Setup completed.
- ☐ VCR is plugged in.
- ☐ TV is turned on and set to CH3, 4 or Video on TV.

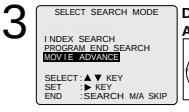



**1** **Insert a cassette without record tab.**

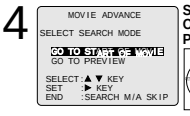


**2** **Display "SELECT SEARCH MODE."**
1) Press SEARCH/ M/A SKIP.*

**3** **Display MOVIE ADVANCE.**
1) Press ▲▼ to select.
2) Press ▶ to set.




**4** **Select GO TO START OF MOVIE or GO TO PREVIEW.**
Press ▲▼ to select.

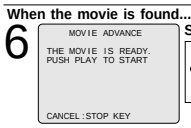



Select "GO TO START OF MOVIE," if you want to advance directly to beginning of the movie.
--> continue with step 5.
Select "GO TO PREVIEW," if you want to view the first (next) preview.
--> go to "To Search for Preview" at right.

**5** **Start searching.**
Press ▶.
• To cancel, press STOP.

**When the movie is found...**

**6** **Start playback.**
Press PLAY.
• To cancel, press STOP.
• The display will time out after 3 minutes and the VCR will enter the Stop mode.




## To Search for Preview.

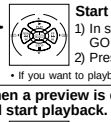
You can override the operation of MOVIE ADVANCE® SEARCH FOR PREVIEWS mode by pressing SEARCH/M/A SKIP during tape searching. MOVIE ADVANCE® works by searching the tape past each preview and then reversing back to the start of the detected preview. While the tape is reversing back, if SEARCH/ M/A SKIP is pressed, MOVIE ADVANCE® will begin searching for the next preview. While searching for the next preview, if you see the start of a preview which you wish to watch, press SEARCH/M/A SKIP and MOVIE ADVANCE® will immediately reverse back to the start of that preview, instead of searching further past the preview start point.

Once the VCR is playing a preview, press SEARCH/M/A SKIP to advance to the next preview, long commercial or the start of the movie (whichever is next).

**a** **Start preview searching.**
1) In step 4 at left, select GO TO PREVIEW.
2) Press ▶.
• If you want to playback, press PLAY.

**When a preview is detected, VCR will start playback.**

**b** **Start next preview searching.**
Press SEARCH/ M/A SKIP.
• To cancel, press STOP.




# Tape Operation (continued)

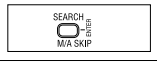
## Search System

Each time a recording is made, an invisible index mark is placed on the tape. When timer recordings are made, program index and information are also included. These index marks can be used to access or scan recordings.

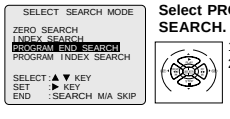
### Program End Search

It is easy to locate the end of a recorded program allowing you to continue recording where you left off.

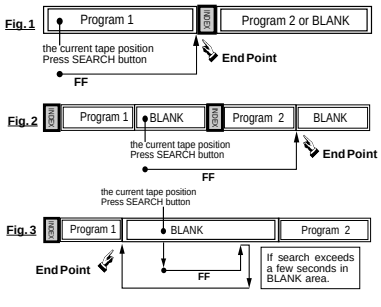
**1** **Display SELECT SEARCH MODE** in Stop or Play mode.
Press SEARCH/ M/A SKIP.*

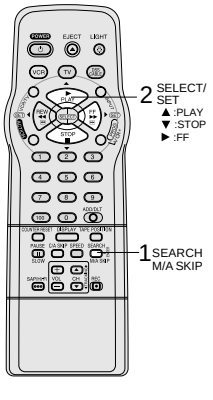



**2** **Select PROGRAM END SEARCH.**
1) Press ▲▼ to select.
2) Press ▶ to start search.



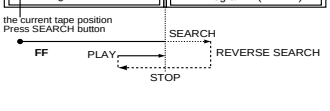

Examples of **Program End Search** operation.




**If Program End Point ( ) is found.**

The search continues slightly beyond the end point, then search and reverse search and plays the last few seconds of the program and finally stops.




**Notes**
- If Program End Search is started very close to an index mark, one program may be skipped over.
- To cancel Program End Search, press PLAY or STOP.

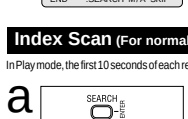
### Program Index Search (For timer recordings only)

Choose a timer recorded program from a Program Index List. **When the tape is ejected or normal recording is started, all program index data is deleted.**

**1** **Display SELECT SEARCH MODE** in Stop or Play mode.
Press SEARCH/ M/A SKIP.*

**2** **Display PROGRAM INDEX.**
1) Press ▲▼ to select.
2) Press ▶ to display.

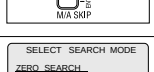
**3** **Select the desired recorded program.**
1) Press ▲▼ to select.
2) Press ▶ to start the forward or rewind search.
• When search is finished, playback begins.



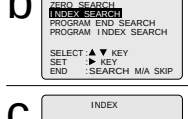

### Index Scan (For normal and /or timer recordings)

In Play mode, the first 10 seconds of each recording can be scanned (forward or reverse).

**a** **Display SELECT SEARCH MODE** in Stop or Play mode.
Press SEARCH/ M/A SKIP.*

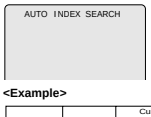



**b** **Select INDEX SEARCH.**
1) Press ▲▼ to select.
2) Press ▶ to display.
• This screen appears only if there are timer recordings.

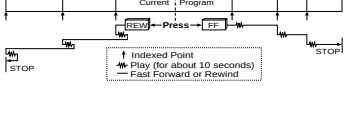


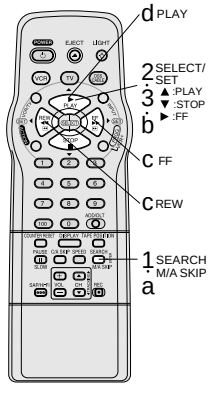

**c** **Start scan.**
Press FF or REW.

**d** **Cancel scan, start playback.**
Press PLAY.
• To stop, press STOP.




**<Example>** **Start here**




### Auto Operation Functions

**■ Auto Playback**
Insert tape --> Power turns on --> --> Starts playback if record tab is removed.

**■ Auto Rewind**
Playback / Manual Record / Fast Forward --> Tape end --> -->Rewinds (Auto)

**■ Playback Auto Eject (Repeat Play is "OFF")**
Playback --> Tape end --> Rewinds -->Tape ejects (if without record tab)

**■ Memory Rewind Off**
Rewind --> Press POWER --> -->Turns off after completed

# Tape Operation (continued)

## Direct Access (For normal and /or timer recordings)

Go directly to desired recording.

**1** **Display SELECT SEARCH MODE** in Stop or Play mode.
Press SEARCH/ M/A SKIP.*

**2** **Select INDEX SEARCH.**
1) Press ▲▼ to select.
2) Press ▶ to display.
• This screen appears only if there are timer recordings.

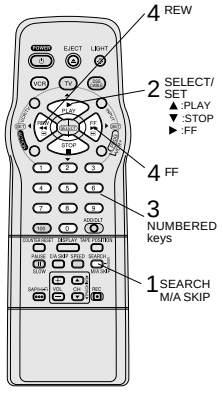
```
SELECT SEARCH MODE
ZERO SEARCH
INDEX SEARCH
PROGRAM END SEARCH
PROGRAM INDEX SEARCH

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :SEARCH M/A SKIP
```

**3** **Select the recording number.**
Press NUMBERED keys.
• To calculate number, see below.

```
INDEX
```

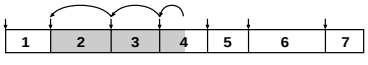
**4** **Start search.**
Press FF or REW.
• When search is finished, playback begins.

```
INDEX  04
INDEX SEARCH 04
```

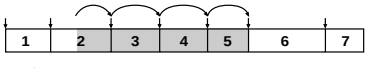



### ■ To Calculate Index Number

**Example 1:**
If you are watching recording 4 and you want to watch recording 2, enter 3 in step "3" and press REW.




**Example 2:**
If you are watching recording 2 and you want to watch recording 6, enter 4 in step "3" and press FF.




NOTE: ↓ indicates start points of each recording.

**Notes**
- Make each entry within 10 seconds, or the Index Search mode will be canceled.
- If Direct Access or Index Scan is started very close to an index mark, that index mark may not be counted in the search.

## Repeat Play

Set to see a recording over and over.

**1** **Display MENU.**
Press ACTION.*

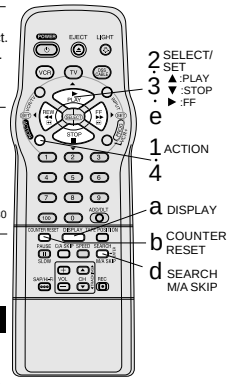
**2** **Display SET UP VCR.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
SET UP VCR
SET UP FEATURE
SET CLOCK
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
VCR'S OUTPUT CH:3
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Set ON or OFF.**
1) Press ▲▼ to select "REPEAT PLAY."
2) Press ▶ to set.
• Playback repeats when tape end is reached or unrecorded portion over 30 seconds is detected.

```
SET UP VCR
REPEAT PLAY      : OFF
TIME STAMP       : ON
REMOTE WARNING   : ON
AUTO SHUT-OFF    : ON

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**4** **Return to normal screen.**
Press ACTION twice.




## Zero Search

To quickly return to specific tape counter location.

**a** **Display Counter.**
Press DISPLAY during playback.

**b** **Reset to "0:00:00."**
Press COUNTER RESET at the desired position.

```
PLAY  12:00AM
          0:00:00
             SP
```

**c** **Continue Recording,playback etc.**

**d** **Display SELECT SEARCH MODE** in Stop mode.
Press SEARCH/ M/A SKIP.*

**e** **Start ZERO SEARCH.**
1) Press ▲▼ to select.
2) Press ▶ to display.
• Unit will go into FF or REW mode and stop at the last point the Counter was set to 0:00:00.

```
SELECT SEARCH MODE
ZERO SEARCH
INDEX SEARCH
PROGRAM END SEARCH
PROGRAM INDEX SEARCH

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :SEARCH M/A SKIP
```

# Special VCR Features

## Channel Caption

When set, station name, e.g. ABC, CBS, and channel number appear on-screen.
Set up to 24 preset captions, and/or 10 manually created captions.

☐ You need a list of stations and the channel numbers you receive them on.

### Preset Caption

**1** **Display MENU.**
Press ACTION.*

**2** **Display SET UP CHANNEL.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
SET UP VCR
SET UP FEATURE
SET CLOCK
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
VCR'S OUTPUT CH:3
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Display CHANNEL CAPTION.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
SET UP CHANNEL
ANTENNA : CABLE
AUTO SET
CHANNEL CAPTION
WEAK SIGNAL DISPLAY : OFF
CABLE/DSS BOX SET UP
VCR Plus+ CH SET UP
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**4** **Display PRESET CAPTION.**
1) Press ▲▼ to select.
2) Press ▶ to display.
• To create your own captions, go to "Manual Caption".

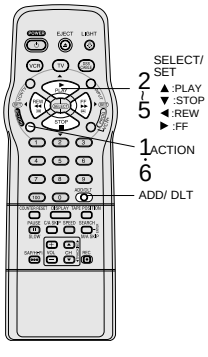
```
CHANNEL CAPTION
PRESET CAPTION
MANUAL CAPTION

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**5** **Assign preset captions.**
1) Press ▲▼ to highlight caption.
2) Press ▶ to move cursor to the right.
3) Press ▲▼ to select CH number.
4) Press ◀ to set.
• Repeat step 5 until the list is complete.

**To make corrections,**
Press ▲▼ and ▶ to select the channel number, then press ▲▼ to change, or ADD/DLT to delete the number.

```
PRESET CAPTION
ABC  40  PBS  60
CBS  --  CNN  25
FOX  33  ESPN  51
NBC  --  HBO  --
CLEAR :ADD/DLT KEY
SELECT:▲ ▼ KEY
SET   :◀ KEY
END   :ACTION KEY
```

**6** **End setup.**
Press ACTION four times.




### Manual Caption

**1** **Do "Preset Caption" steps 1~3.**

**2** **Display MANUAL CAPTION.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
CHANNEL CAPTION
PRESET CAPTION
MANUAL CAPTION

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Select channel number.**
1) Press ▲▼ to select CH NUMBER.
2) Press ▶ to move cursor to the right.
• Channels already set and channels deleted from Channel Memory are not displayed.
• You can set a total of ten channel captions.

```
MANUAL CAPTION
CH NUMBER    CAPTION
02           ----

SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**4** **Enter CAPTION.**
1) Press ▲▼ to select.
2) Press ▶ to enter.
• Characters change in following order.

▶A↔B↔C↔…↔Z↔BLANK↔–↔&↔9↔…↔2↔1↔0↔▶

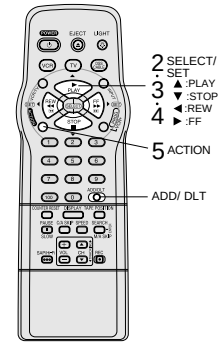
3) Press ◀ to set.

• Repeat steps 3 and 4 as desired.

**To make corrections,**
Press ◀ ▶ to move to the incorrect entry, then press ▲▼ to make correction. Or, press ADD/DLT to clear the caption.

```
MANUAL CAPTION
CH NUMBER    CAPTION
02           A---

CLEAR :ADD/DLT KEY
SELECT:▲ ▼ KEY
SET   :◀ ▶ KEY
```

**5** **End input.**
Press ACTION four times.



# Special VCR Features (continued)

## Time Stamp Feature

The VCR writes program data (see example below) about the first 10 seconds of every recording. The information is then displayed the first 10 seconds of playback. To change the data, see "Changing Time Stamp Data".

**Check list before you begin.**
- ☐ Clock is set to correct time.
- ☐ Record tab in place.

**1** **Display MENU.**
Press ACTION.*

**2** **Display SET UP VCR.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
  SET UP VCR
  SET UP FEATURE
  SET CLOCK
  SET UP CHANNEL
  IDIOMA/LANGUE:ENGLISH
  VCR'S OUTPUT CH:3
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Set ON or OFF.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
SET UP VCR
REPEAT PLAY      : OFF
TIME STAMP       : ON
REMOTE WARNING   : ON
AUTO SHUT-OFF    : ON
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

- When "OFF" is selected, the program data is written on the tape, but will not be displayed.

**4** **Return to normal screen.**
Press ACTION twice.

<Time Stamp Example>

One Touch Recording

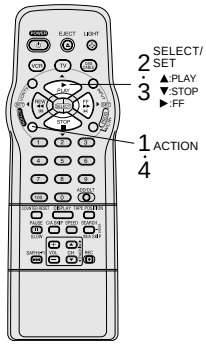
```
12/27/1999 MON
12:00PM
CH 08 ABC
```

Timer Recording

```
12/27/1999 MON
12:00PM - 1:00PM
CH 08 ABC  MOVIE
MEMORIAL MOVIE
```

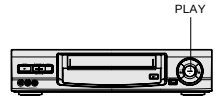
When Clock is not set...

```
--/--/----
--:--
CH 08 ABC
```




## Changing Time Stamp Data

You may change the Date, Time, Channel, Category, and Notes.




**1** **Display Time Stamp Data.**
1) Insert cassette with record tab.
2) Press PLAY.

**2** **Display TIME STAMP EDIT.**
Press PROG/VCR+ while the data is displayed in Playback mode.

```
12/27/1999 MON
12:00PM - 1:00PM
CH 08 ABC  MOVIE
MEMORIAL MOVIE
```

**3** **Change Time Stamp Data.**
1) Press ▲▼ to select.
2) Press ▶ to enter and continue.

```
TIME STAMP EDIT
DATE : 12/27/1999 MON
TIME : 12:00PM - 1:00PM
CH   : 08 ABC
CATEGORY : MOVIE
NOTES :MEMORIAL MOVIE----
SELECT:▲▼ KEY
SET   :◀ ▶ KEY
END   :PROG KEY
```

- Characters in NOTES will change in the following order.

→A↔B↔C◀····▶Z↔BLANK↔–↔&◀
▶9◀····▶2↔1↔0↔/↔!◀

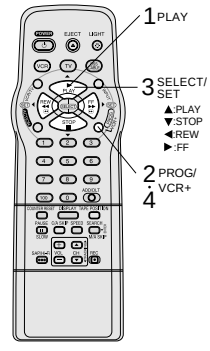
3) Repeat 1) and 2) as needed.

**To make corrections,**
Press ◀ ▶ to move to the incorrect entry, then press ▲▼ to make the correction.

**4** **Write the new data.**
Press PROG/VCR+.

```
NOW WRITING TIME STAMP
```

- When data is written, VCR returns to Stop mode.

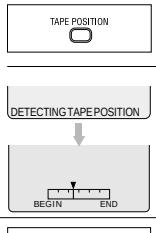



# Special VCR Features (continued)

## Tape Position Display Feature

To find out the present tape position.
**Tape position cannot be found for C-Cassette type and tape of less than 60 minutes.**

**1** **Detect Tape Position.**
Press TAPE POSITION.




- "DETECTING TAPE POSITION" only appears the first time a cassette is inserted.
- It takes several seconds for correct indication to appear.
- The present tape position indication is displayed.

**2** **Return to normal screen.**
Press TAPE POSITION.

## Remote Warning ON/OFF Feature

If Multi-brand feature is used, and this feature is set to on, a warning appears whenever an invalid key is pressed in TV, DSS, or Cable mode.

**a** **Display MENU.**
Press ACTION.

**b** **Display SET UP VCR.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
  SET UP VCR
  SET UP FEATURE
  SET CLOCK
  SET UP CHANNEL
  IDIOMA/LANGUE:ENGLISH
  VCR'S OUTPUT CH:3
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

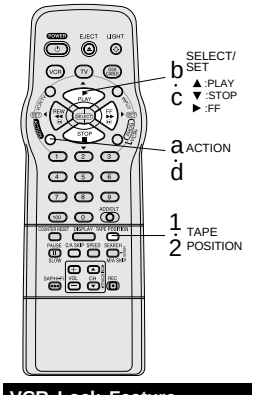
**c** **Set ON or OFF.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
SET UP VCR
REPEAT PLAY      : OFF
TIME STAMP       : ON
REMOTE WARNING   : ON
AUTO SHUT-OFF    : ON
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

- "OFF" --> remote warning will not appear even if invalid key is pressed.

**d** **Return to normal screen.**
Press ACTION twice.

**Check list before you begin.**
- ☐ All connections are made.
- ☐ VCR is plugged in.
- ☐ TV is turned on and tuned to CH3, 4 or Video.




## VCR Lock Feature

All operations are prohibited except timer recording and tape eject. Useful for families with small children.

**A** Press REC in Stop mode.

```
VCR LOCK ACTIVATED
```

**To turn on:**
In Stop mode, hold down REC on the VCR without a cassette inserted for 7 seconds.

```
VCR LOCK OFF
```

**To turn off:**
Repeat above.

- VCR Lock is canceled automatically after 24 hours if clock is set.

## Weak Signal Display ON/OFF Feature

When "ON" is selected, picture is displayed even when broadcast signal is weak or nonexistent.

**1** **Display MENU.**
Press ACTION.*

**2** **Display SET UP CHANNEL.**
1) Press ▲▼ to select.
2) Press ▶ to display.

```
MENU
  SET UP VCR
  SET UP FEATURE
  SET CLOCK
  SET UP CHANNEL
  IDIOMA/LANGUE:ENGLISH
  VCR'S OUTPUT CH:3
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**3** **Set ON or OFF.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
SET UP CHANNEL
ANTENNA : CABLE
AUTO SET
CHANNEL CAPTION
WEAK SIGNAL DISPLAY : OFF
CABLE/DSS BOX SET UP
VCR Plus+ CH SET UP
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

- ON --> Picture is displayed regardless of signal condition, and may not always be clearly visible.
  OFF --> Screen turns solid blue when signal is absent or weak.
- If VCR is connected to equipment which has blue back feature, selecting ON will have no effect on the other equipment.

**4** **Return to normal screen.**
Press ACTION twice.

## Auto Shut-Off Feature

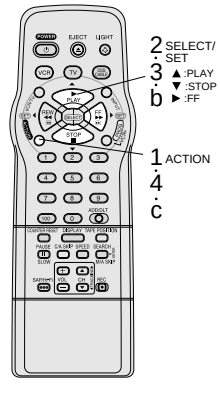
When "ON" is selected, VCR shuts itself off when playback of a blank portion of tape continues or no signal (except when LINE is selected) is detected for over 5 minutes.

**a** **Repeat step "a" and "b" on previous section to display SET UP VCR.**

**b** **Set ON or OFF.**
1) Press ▲▼ to select.
2) Press ▶ to set.

```
SET UP VCR
REPEAT PLAY      : OFF
TIME STAMP       : ON
REMOTE WARNING   : ON
AUTO SHUT-OFF    : ON
SELECT:▲▼ KEY
SET   :▶ KEY
END   :ACTION KEY
```

**c** **Return to normal screen.**
Press ACTION twice.



1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ⓘ :Test point with a jumper wire across a hole in P.C.B.
   ▭→ :Test point with a component lead on the foil side.
   ▨ :Test point with no test pin.
   ● :Test point with a test pin.

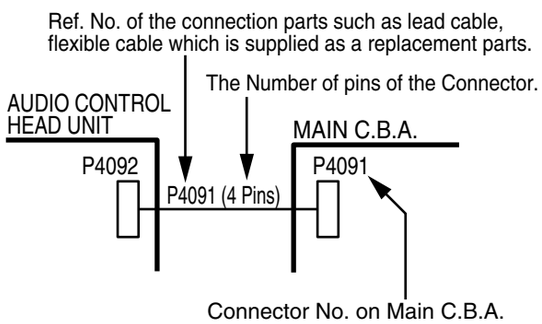
## Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

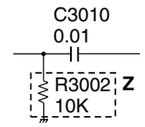
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
AUDIO CONTROL HEAD UNIT
MAIN C.B.A.
P4092
P4091 (4 Pins)
P4091
Connector No. on Main C.B.A.

3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

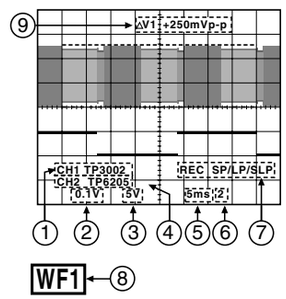
   Example:




4. The part number shown on this drawing is only main part number, except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

## Signal Waveform Note

How to read Signal Waveform




① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope (1:CH1,2:CH2)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ ΔV1:Peak to Peak

## Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

## Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

## Comparison chart of models & marks

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**IC6001 KEY MATRIX**

| OUT / IN | SCAN 1 PIN 93 | SCAN 2 PIN 94 |
|---|---|---|
| DATA 8 PIN 40 | —— | REW /REV |
| DATA 9 PIN 41 | —— | PLAY |
| DATA 10 PIN 43 | —— | STOP /EJECT |
| DATA 11 PIN 44 | POWER | CH DOWN |
| DATA 12 PIN 45 | CH UP | TV/VCR |
| DATA 13 PIN 46 | REC /TIME | FF /CUE |

CAPSTAN SERVO
CYLINDER SERVO

TO MAIN III
UNSW +5V(SYS.CTL) 1

IC6005
KS24C011CS A,B,C,D
AT24C01A10SI E,F,G
(MEMORY)
SERIAL DATA, SERIAL CLOCK, WRITE PROTECT, GND, VCC

R6100 220
R6114 220
C6027 0.1
C6029 22/6.3V Z

C6001 0.1
C6014 Z
TP6010 TP6011 WF22 TP6205
R6022 270K A,B,C,D
R6023 330K E,F,G
R6024 5600
R6031 56K Z
R6034 R6095 R6096 R6097 Z

D6003
R6038 56 1/4W
C6016 330/6.3V

R6037 390 1/4W
Q6005 2SA1037K146R (SWITCHING POWER ON-ON)
Q6006 2SC4081T106R (SWITCHING POWER ON-ON)
R6110 10K
R6109 10K
C6018 Z
Q6007 DTA143EU (IC6001 RESET)
C6019 100/6.3V
R6060 4.7M

IC6004 MN12821-RTX (IC6001 RESET)
RESET
C6021 0.01

R6010 1800
Q6001 2SC4081T106R (IC6001 RESET)
R6012 1K
C6033 0.1
C6010 100P
R6075 22K Z
R6008 10K

TO MAIN II
DELAY REC +12V 3
Q6002 2SB709A(R,S) (SWITCHING REC-ON)
R6006 10K

TO MAIN VI
AUDIO BLACK DETECT 18
VIDEO BLACK DETECT 17

TO MAIN II
INPUT SELECT 2 5
V-LOCK PULSE 6

TO MAIN IV
Hi-Fi HEAD SW 8
Hi-Fi PB(H) 10
3.58MHZ 11

TO MAIN V
KEY DATA 8 12

B,C,D,E,F,G
R6015 1K
R6014 1K

C6013 Z
C6015
C6017
C6025
C6007
C6008
C6009

R6016 22K
R6017 Z
R6003 2200
R6019 220
R6020 220
R6025 3300
R6026 1K
R6027 100
R6035 1K
R6036 56K
R6039 1K
R6057 1K
R6058 Z
R6059 1K
R6072 10K
R6076 10K
R6077 1K
R6078 220
R6079 220
R6080 10K

R6084 Z
R6083 Z
WF24
R6088 10K B,C,D,E,F,G
C6026 1000P
R6082 10K

R6062 15K
R6063 15K
R6064 15K
J6003 Z

R6085 22K
R6086 22K
R6087 22K

TP6019 TP6018 TP6017

R6007 2700
RESET
V-LOCK PULSE
3.58MHz
Hi-Fi HEAD SW
VIDEO DELAY REC(H)
Hi-Fi PB(H)
SAFETY TAB
VIDEO BLACK DETECT(L)
AUDIO BLACK DETECT(L)
CAP ERROR
CYL ERROR
IC6301 CLK
VDD
OSC 2
OSC 1
GND
KEY DATA 8
KEY DATA 9
SXI
KEY DATA 10
KEY DATA 11
KEY DATA 12
KEY DATA 13
VIDEO
GND
VIDEO
SYNC

HEAD SW
INPUT SELECT 2
I2C SERIAL CLOCK
I2C SERIAL DATA
SERIAL DATA 0
DATA 0
SERIAL CLOCK 0
SERIAL DATA 1
SERIAL CLOCK 1
TV(L)/VCR(H)
CH FREQUENCY LOCK
SIGNAL(L)
LOADING MOTOR FORWARD(H)
LOADING MOTOR REVERSE(H)
IR DATA
EV-MASK(H)

CAP TORQUE LIMIT 1
CAP DIRECTION CTL
FORCED ACCELERATION
SUPPLY REEL PULSE
TAKEUP REEL PULSE

POWER DOWN(L)
ENVELOPE DET
HEAD AMP SW
ROTARY SW
MODE SW POSITION A
MODE SW POSITION B
MODE SW POSITION C
SCAN 2/CATV CS(L)
SCAN 1/CATV DATA
KEY DATA 0
KEY DATA 1
KEY DATA 2
KEY DATA 3
KEY DATA 4
KEY DATA 5
SW+14V ON(H)
5000H(L)
SW+22V ON(H)
POWER ON(L)
MTS MODE
AFC
SUPPLY PHOTO TR(L)
TAKEUP PHOTO TR(L)
ENV-VOLTAGE
TPZ
PB CONTROL PULSE

R6115 1K
R6116 1K
R6049 4700 E,F,G
R6051 4700 E,F,G
R6052 4700
R6054 10K
R6045 Z
R6044 Z
R6045 Z
R6046 Z
R6047 Z
R6048 Z
R6050 Z
R6053 Z
R6055 Z
R6056 Z
R6057 Z
TP6210

IC6001
MN101D02GPF1 A
MN101D02HPR1 B,C,D
MN101D02HPS1 E,F,G
(SYSTEM CONTROL/SERVO/TIMER MICROCONTROLLER)

X6001 VSXS0232-TB 14MHz
C6022 0.1 Z
C6003 0.1 Z
C6004 1P Z
C6005 15P
C6006 10P
R6093 10K

TP6201
TP6202
WF26
TP6207
TP6208
R6074 2700 1/4W
TP6007
SW6001 LSSH0002 SAFETY TAB SW
R6203 10K
R6202 270K
C6202 Z
C6201 1000P
R6205 47K
R6204 180K
C6204 Z
C6203 0.01

KEY DATA 9 13
KEY DATA 12 14
KEY DATA 13 15
IC6301 CLK 16
KEY DATA 10 7
KEY DATA 11 8

TO MAIN V

R6021 Z
R6091 Z
R6092 Z
R6098 Z
R6099 Z

TO MAIN II
VIDEO 20
VIDEO 21
C6028 Z

TO MAIN III
SW +5V(VIDEO) 22
R6001 100 1/4W
D6001 VEKS5708 SENSOR LED

R3301 1K
C3303 120P
C3302 1
C3308 0.1
R3305 1500
C3306 0.47/50V
R3302 3900
TP6014
R6090 1K E,F,G
R6028 10K
R6029 560
R6030 1K
R6085 2700
R6088 1K
R6071 1K

VDD
AFC
AFC
BLACK (H)
CATV SCK
IC6301 CS(L)
3CH(H)/4CH(L)
AUDIO MUTE(H)
AUDIO DEFEAT(H)
DTS CS(H)
PB(L)
CUE/REV/SS(L)
GND
CYL PG/FG
GND
CAP FG
CAP FG
V-REF 1
V-REF 2
GND
CTL AMP
VDD

CTL PULSE(-)
CTL PULSE(+)

WF21 TP6204
WF20 TP6203
C6214 1000P
C6210 0.056
C6211 2700P Z
C6208 0.1
R6231 2.2M
C6213 100P Z
R6224 4700
C6217 0.1
C6221 22/6.3V
C6218 10/16V
C6224 330/6.3V
R6081 100K
R6089 1K

WF25 TP6206
R6228 1500
C6222 2700P
R6230 2200
C6228 0.1
C6230 0.1 Z
C6031 0.1
C6223 0.01 A,B,C,D,E,G
1000P F
C6216 0.01
TP6211 WF23

TP6003

R6069 100K
R6070 100K
R6073 47K
R6033 680 1/4W
R6066 47K
TP6009
TP6004
TP6005
TP6001
TP6002
TP6008
C6022 Z 1000P
C6023 Z 1000P

Q6009 VEKS5707 (SUPPLY PHOTO TR)
Q6010 VEKS5707 (TAKEUP PHOTO TR)

IC6002 SG-PK01 (TAKEUP REEL SENSOR)
C6024 100P E,F,G

IC6003 SG-PK01 (SUPPLY REEL SENSOR)
C6011 100P E,F,G

C6231 100/6.3V
L6002 100

P6201 (TO CAPSTAN STATOR C.B.A. P2502)
2 UNSW +5V(SYS.CTL)
7 LD-M FWD(H)
5 LD-M REV(H)
3 UNSW +5V(SYS.CTL)
12 GND
11 GND
9 CAP FG(+)
8 CAP TORQ.LIM
10 CAP DIRECTION CTL
4 CAP ERROR
6 V-REF
1 UNSW +14V

TO MAIN II
9 CH FREQUENCY LOCK
73 I2C SERIAL CLOCK
74 I2C SERIAL DATA

TO MAIN III
34 SW +12V
35 POWER DOWN(L)

TO MAIN II
36 HEAD SW

TO MAIN IV
37 I2C SERIAL CLOCK
38 I2C SERIAL DATA

TO MAIN II
39 SERIAL DATA 0

TO MAIN V
41 SERIAL DATA 1
42 SERIAL CLOCK 1
43 SERIAL CLOCK 0

TO MAIN II
30 TV(L)/VCR(H)
45 SIGNAL(L)

TO MAIN V
47 IR DATA

TO MAIN VI
50 E/V-MASK(H)
110 500H(L)

TO MAIN II
52 ENV-DET
53 HEAD AMP SW
54 ROTARY SW

SW6002 LSSS0012
MODE SELECT SWITCH
2 POSITION A
3 POSITION B
4 POSITION C
1

TO MAIN V
55 SCAN 2/CATV CS(L)
56 SCAN 1/CATV DATA
57 KEY DATA 0
58 KEY DATA 1
59 KEY DATA 2
60 KEY DATA 3
61 KEY DATA 4
62 KEY DATA 5

TO MAIN III
68 SW +14V ON(H)

TO MAIN IV
64 MTS MODE

TO MAIN II
67 AFC
66 ENV-VOLTAGE

TO MAIN III
84 SW +22V ON(H)
33 POWER ON(L)
82 UNSW +14V

TO MAIN IV
AUDIO MUTE(H) 46

TO MAIN V
CATV SCK 121

TO MAIN II
IC6301 CS(L) 25
3CH(H)/4CH(L) 26
AUDIO MUTE(H) 51

TO MAIN IV
A-DEFEAT(H) 28

TO MAIN II
DTS CS(H) 27
PB(L) 32
CUE/REV/SS(L) 44

TO MAIN VI
CYL ERROR 30
CYL PG/FG 31
CTL HEAD 70
CTL HEAD GND 71

UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165/WG713A/1SS133T,
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6062 A,B,C,D
VJBS6063 E,F,G

A B C D E F G H I J K L M N O
10 9 8 7 6 5 4 3 2 1

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

**HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.**

NOTE: THE VOLTAGE FOR PARTS IN HOT CIRCUIT
IS MEASURED USING TP1001
AS A COMMON TERMINAL.

UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165/1SS119/1SS133T AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6062 A,B,C,D
VJBS6063 E,F,G

AC CORD
P1001 AC120V 1 / AC120V 2
F1001 1.6A/125V
C1027 0.01 125V
C1001 0.01 125V
L1001 18M
C1002 3300P 125V
C1003 3300P 125V
D1001 S1WBA60-4062
C1004 120/200V
R1001 2.7M 1/2W
C1025 100P 125V
HOT
T1001 ETS28AD2J3NP /ETS28AD2J3PP /VTPS0041-1 /VTPS0041-2 A,B,C,D / LST0098 E,F,G
R1004 33K 2W
C1005 4.7/200V
D1002 EG01V1
C1006 220P 500V
L1006 VLPS0083
R1003 330K 1/2W
Q1001 2SC4533LP,KT A,B,C,D /2SC5130LF608 /2SC4130LF608 /2SC4559LP,KT E,F,G (SWITCHING)
Q1002 2SD2259 (SWITCHING CONTROL)
WF27 WF28 WF33
TP1001
C1009 0.018
R1005 56 1W
C1030 0.018
D1003 ERA18-04V3
R1025 15 1/2W
C1007 0.22
R1008 3900 1/4W
R1006 2200
D1016
R1007 100 1/4W
C1029 100P
D1005 EG01V1
R1010 10
TP1002
C1011 4.7/50V
C1010 100P
D1006 ERB32-01L3
L1002 22
C1012 330/18V
D1015 MA7180 (18V)
PR1002 ICP-N38-TP1 /LSSF0009A25E /UNH000600A
C1013 330/25V
TP1003
WF29 WF30
J1001
D1080 EK19V1
C1080 330/35V
D1081 MA7240A-TR
R1080 10K
PR1080 ICP-N38-TP1 /LSSF0009A25E /UNH000600A E,F,G
TP1080
D1007 MA188
TP1004
R1011 10
C1014 4.7/50V
R1024 33 1/4W
WF31
D1008 EC21QS03L
C1016 330/18V
L1003 10
PR1001 ICP-N38-TP1 /LSSF0009A25E /UNH000600A
C1017 1000/6.3V
WF32
D1009 D1FS4
TP1006
C1019 100/6.3V
C1023 0.1
TP1007
D1011 MA4051N-TAKT (5.1V)
IC1001 PS2501-1-X /ON3131-R.KT /ON3131-S.KT (ERROR VOLTAGE DET)
R1014 220
C1021 1/50V
R1017 10K
R1015 220
Q1003 2SC4081T106R /2SD1819A(R,S) (ERROR VOLTAGE DET)
R1016 5600 1/8W
R1018 18K
C1018 0.1
R1019 3900
R1020 6800
Q1005 2SA1576A106R /2SB1218ARS (POWER DOWN-OFF)
TP1008
D1012 MA858
D1013
R1022 220
Q1004 2SA1037K146R /2SB709A(R,S) (ERROR VOLTAGE DET)
R1023 100K 2W
R1068 0 1/4W
J1002
J1003
E,F,G
D1083 ERA15-01V5
D1084 ERA15-01V5
D1087 ERA15-01V5
D1088 ERA15-01V5
D1085 ERA15-01V5
Q1082 2SB1398(Q) (+14V REGULATOR)
R1085 1K
R1084 1200 1/4W
D1086 ERA15-01V5
Q1083 2SD601(R,S) (SWITCHING)
R1086 10K
68 SW +14V ON(H)
77 UNSW +33V
TP1058
Q1051 2SD1581(T) /2SD2159(T) (SWITCHING POWER ON +12V)
J1051
D1054 Z
C1052 10/16V
C1051 0.47/50V
R1052 15K 1/4W
R1053 15K 1/4W
D1051 MA4100N-H (11V)
R1056 Z
Q1052 2SC2412K1 /2SD601(R,S) (SWITCHING POWER ON-OFF)
R1051 1200
78 SW +12V
86 SW +12V
34 SW +12V
33 POWER ON(L)
19 UNSW +14V
120 UNSW +14V
D1017 ERA15-01V5 A,B,C,D
82 UNSW +14V
TP1081
Q1080 2SB1398(Q) (+22V REGULATOR)
R1081 1K
C1082 Z
R1083 1200 1/4W
Q1081 2SD601(R,S) (SWITCHING)
R1082 10K
84 SW +22V ON(H)
TP1005
Q1053 2SD2097TV2R /2SD235800A (SWITCHING POWER ON +5V)
TP1050
C1032 220 6.3V
C1055 0.01 Z
C1057 0.01 Z
R1070 22K 1/4W
Q1070 2SB709A(R,S) (SWITCHING POWER ON-ON)
R1071 150K 1/4W
R1057 330 1/4W
R1058 100K 1/4W
C1059 47/16V
C1058 100/6.3V
79 UNSW +5V(SYS.CTL)
2 UNSW +5V(SYS.CTL)
1 UNSW +5V(SYS.CTL)
22 SW +5V(VIDEO)
87 SW +5V(VIDEO)
80 SW +5V(VIDEO)
104 SW +5V(VIDEO)
TP1009
R1074 2700 1/4W
R1072 47K 1/4W
R1075 2700 1/4W
Q1071 2SD601(R,S) (SWITCHING POWER ON -5V)
R1073 22K 1/4W
D1070 MA4056-M (5.6V)
C1070 100/16V
81 AUDIO -5V
123 UNSW -30V
83 F+
122 F-
35 POWER DOWN(L)

TO MAIN I
TO MAIN II
TO MAIN IV
TO MAIN I
TO MAIN VI
TO MAIN V
TO MAIN I
TO MAIN V
TO MAIN VI
TO MAIN I
TO MAIN IV
TO MAIN II
TO MAIN VI
TO MAIN II
TO MAIN V
TO MAIN I

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

A,B,C,D

E,F,G

REC VIDEO SIGNAL

REC AUDIO SIGNAL

DP6301 VSZS0130

DP6301 VSZS0131

IC6301 MN12512
(INDICATOR PANEL CONTROL)

IC6303 MN12510F
(INDICATOR PANEL CONTROL)

TO MAIN III
F+ 83
F- 122
UNSW +5V(CYS.CTL) 79
UNSW -30V 123

TO MAIN I
IC6301 CS(L) 25
IC6301 CLK 16
SERIAL DATA 1 41
SERIAL CLOCK 1 42

R6350 47 1/4W
R6351 39 1/4W
R6311 27 1/4W
R6312 27 1/4W
R6353 47K
D6324 MA4056-M (5.6V)
L6301 100
C6306 470/6.3V
C6307 0.1
C6316 Z
C6301 Z
C6310 0.1
C6315 100/50V
C6317
C6318 Z
C6310 Z
R6301 68K
R6302 68K
R6303 68K
R6304 68K
R6305 68K
R6306 68K
R6307 68K
R6308 68K
R6309 68K
R6310 68K
X6301 EF0EC4004T4

SCAN 2/CATV CS(L) 55
SCAN 1/CATV DATA 56
KEY DATA 0 57
KEY DATA 1 58
KEY DATA 2 59
KEY DATA 3 60
KEY DATA 4 61
KEY DATA 5 62
KEY DATA 11 8
KEY DATA 12 14
KEY DATA 10 7
KEY DATA 13 15
KEY DATA 8 12
KEY DATA 9 13

J6301 E,F,G
J6302 A,B,C,D
J6303 Z
J6304 Z
J6305 E,F,G
J6306 A,B,C,D
J6307 Z
J6308 Z
J6309 Z
J6310
J6311 Z
J6312 Z
J6313 Z
J6314 A
J6315 Z
J6316 B,C,D,E,F,G
J6317 C,D,F
J6318 B,E,G
J6319 Z
J6320 A
J6321 Z
J6322 B,C,D,E,F,G
J6323 Z
J6324 A

D6325
D6326
R6364 100K
R6365 100K
R6366 100K
R6367 100K
R6368 100K
R6369 100K
TP6305
TP6306
TP6303
TP6304
SW6310 STOP/EJECT
SW6306 REC/TIME
SW6316 FF
SW6313 REW
SW6314 PLAY

U6301 PNA4611M03KT
OUT GND Vcc
INFRARED RECEIVER UNIT
R6346 47 1/4W
C6305 47/6.3V
J4151 Z
R6361 4.7 1/8W

47 IR DATA — TO MAIN I
75 VIDEO 2
85 AUDIO 2 L CH — TO MAIN II
88 AUDIO 2 R CH — TO MAIN IV
121 CATV SCK — TO MAIN I
120 UNSW +14V — TO MAIN III

P6320 (TO OPERATION C.B.A. P6302)
2 UNSW +14V
8 CATV SCK
5
4
16 AUDIO 2 R CH
19 AUDIO 2 L CH
14 VIDEO 2
18 GND
17 GND
15 GND
1 GND
3 UNSW +5V(SYS.CTL)
12
10 SCAN 2
11 SCAN 1
13 KEY DATA 11
9 KEY DATA 12
7 CATV DATA
6 CATV CS(L)
20

UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165,
SWITCHES IS EVQ11A09K AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6062 A,B,C,D
VJBS6063 E,F,G

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

REC AUDIO SIGNAL　PB AUDIO SIGNAL　CYLINDER SERVO　CAPSTAN SERVO

B,C,D,E,F,G

TO MAIN I　VIDEO BLACK DETECT 17
TO MAIN II　VIDEO 102
CUE/REV/SS(L) 103

TP3802　WF40　C3822 1/50V

IC3801 AN3275SB-E1 (SYNC DETECTOR)

GND　V-REF　CLAMP　H-MASK DELAY　H-MASK WIDTH CONTROL　V/H SYNC SEPARATION　CLAMP　LPF　AMP　BLACK VIDEO DETECTOR　VIDEO LATCH　COUNTER　MA　CA　V-SYNC SEPARATION　V-MASK DELAY　V-MASK WIDTH CONTROL　MIX　ENVELOPE DETECTOR　VIDEO DETECT　LPF　BLACK AUDIO DETECTOR　AUDIO LATCH　COUNTER　AMP　AUDIO DC　VCC

C3826 0.47　C3821 39P　L3802 47　C3820 0.1　C3819 0.01　R3811 47K　C3818 0.01　R3810 47K　C3817 0.01　TP3805　C3816 0.22　C3815 0.1　R3813　R3821　R3815　R3822　R3812　R3814　C3830

TO MAIN III　SW +5V(VIDEO) 104　L3801 100　C3829 100P　C3801 100/6.3V　C3802 0.01　C3803 3300P　C3804 0.1　C3827　C3805 0.01　C3806 3900P　R3819　R3802　R3801　C3807 0.01　R3803 47K　R3804　C3808 0.1　R3805　R3806　R3820　C3825 2.2/50V　TP3801　WF41　TP3803　C3810　C3811 0.01　R3807 39K　C3828 100P　C3812 1000P

TO MAIN II　WF42　AUDIO 105　TP3804　PB AUDIO 92　HEAD AMP SW 106

TO MAIN I　E/V-MASK(H) 50　AUDIO BLACK DETECT 18

**IC2601** AN3808K (CYLINDER MOTOR DRIVE)

CYLINDER MOTOR MAIN COIL DRIVE　BACK ELECTROMOTIVE FORCE DETECT　CHARGE/DISCHARGE CTL　EXTERNAL SYNCHRONIZATION　CONTROL LOGIC　DIVIDER　PG/FG PULSE GENERATOR　WAVEFORM SHAPER　TORQUE COMMAND　OSC　GND　VCC

C2609 0.1　C2608 0.1　C2610 0.01　C2612 0.1　C2611 0.01　C2607 0.1　C2604 0.1　C2605 0.1　C2606 0.1　R2604 1 1/4W　R2605 1.2 1/4W　C2603 4.7/25V　R2603 33　R2606 560

C2601 4.7/25V　C2602 4.7/25V　R2601 33　R2602 33　C2616 100/6.3V

P6202 (TO HEAD AMP C.B.A. P2601)

| | |
|---|---|
| 12 | MAIN COIL 3 |
| 11 | MAIN COIL 2 |
| 10 | MAIN COIL 1 |
| 9 | HE- |
| 8 | VH+ |
| 7 | HE+ |
| 6 | GND |
| 5 | CTL HEAD GND |
| 4 | UNSW +14V |
| 3 | AUDIO HEAD |
| 2 | CTL HEAD |
| 1 | AUDIO HEAD |

| | | |
|---|---|---|
| 19 | UNSW +14V | TO MAIN III |
| 2 | UNSW +5V(SYS.CTL) | |
| 30 | CYL ERROR | TO MAIN I |
| 31 | CYL PG/FG | |
| 70 | CTL HEAD | |
| 71 | CTL HEAD GND | |
| 72 | AUDIO HEAD | TO MAIN II |
| 69 | AUDIO HEAD | |

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS6062 A,B,C,D
VJBS6063 E,F,G

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

E,F,G

**IC6403** MN13821-RTX
(IC6401 RESET)

RESET

**IC6402**
(IC6401 RESET)
Z

D6403 LN66ALKT
D6402 LN66ALKT
D6401 LN66ALKT
R6403 22 1/4W
INFRARED LED
INFRARED LED
INFRARED LED

**Q6401**
2SD2191TL2
(INFRARED LED DRIVE)

REC VIDEO SIGNAL
REC AUDIO SIGNAL

JK7801
VIDEO (L) AUDIO(R)

C6401 0.01
C6402 47/6.3V
C6403 0.1
X6401
EF0EC4004T4
R6404 1K
J6404 J6402 J6403 J6401 Z
R6405 1K

D7801 MA4051-M (5.1V)
D7802 MA4051-M (5.1V)
R7801 75 1/4W

**P6302 (TO MAIN C.B.A. P6320)**

| | |
|---|---|
| 2 | UNSW +14V |
| 8 | CATV SCK |
| 18 | GND |
| 17 | GND |
| 19 | AUDIO 2 L CH |
| 16 | AUDIO 2 R CH |
| 14 | VIDEO 2 |
| 5 | S-VHS ET LED ON(H) |
| 4 | S-VHS LED ON(H) |
| 15 | GND |
| 1 | GND |
| 3 | UNSW +5V(SYS.CTL) |
| 12 | KEY DATA |
| 11 | SCAN 1 |
| 10 | SCAN 2 |
| 13 | KEY DATA 11 |
| 9 | KEY DATA 12 |
| 7 | CATV DATA |
| 6 | CATV CS(L) |
| 20 | |

14 13 12 11 10 9 8 7 6 5 4 3 2 1
RESET GND XIN XOUT VDD IR CODE CATV SCK
4MHz

**IC6401**
D17216GT-750
(CATV CONTROL)

15 16 17 18 19 20 21 22 23 24 25 26 27 28
CATV CS(L) CATV DATA

R6401 1K
R6402 1K
R6406 R6407 Z

R6380 D6380 S-VHS ET **Q6380** R6381 R6382
(S-VHS ET LED DRIVE)
R6383 D6381 S-VHS **Q6381** R6384 R6385
(S-VHS LED DRIVE)
Z

SW6301 POWER
SW6302 CH DOWN
SW6303 CH UP
SW6304 TV/VCR
SW6305 S-VHS ET Z

UNLESS OTHERWISE SPECIFIED;
SWITCHES IS EVQ11G05R AND
WATTAGE OF RESISTORS IS 1/10W.

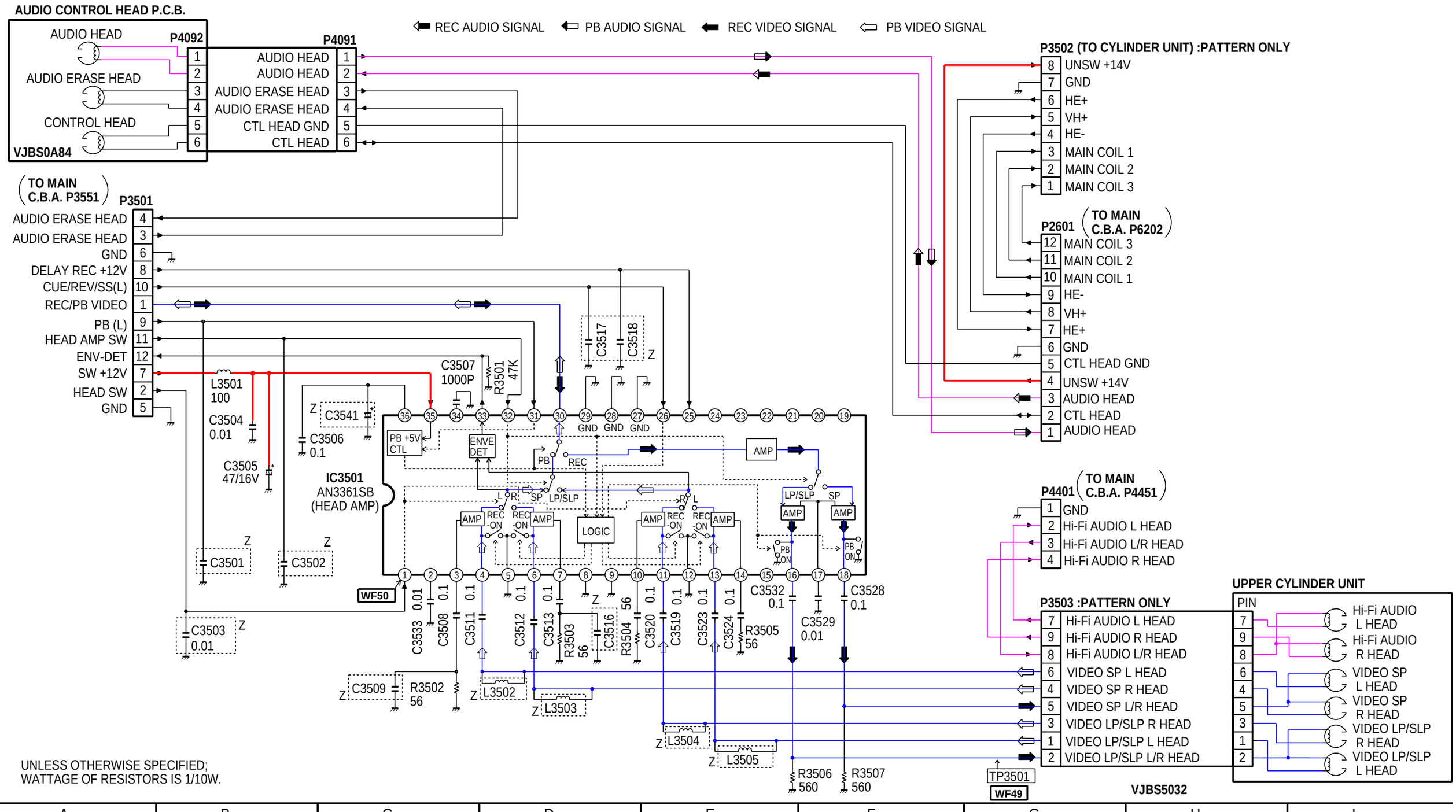
VJBS8057

5 4 3 2 1
A B C D E F G H

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.




UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
WHEN INSTALLING THE IC2501(AN3845SC OR AN3846SC) OR CAPSTAN STATOR C.B.A.,
BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.
(Q2501, Q2502, Q2503, CAPSTAN COIL)

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

CAPSTAN SERVO

LOADING MOTOR UNIT
LOADING MOTOR
P2503
LD-M(+) 2
LD-M(-) 1

IC2501
A,B,C,D AN3845SC
E,F,G AN3846SC
(CAPSTAN/LOADING MOTOR DRIVE)
LOADING MOTOR CONTROL LOGIC
TORQUE COMMAND
DIRECTION CONTROL LOGIC
CAPSTAN MOTOR COIL DRIVE
UPPER DRIVE CONTROL
LOWER DRIVE CONTROL
DIRECTION DETECT
POSITION SIGNAL PROCESS
VCC
GND

(TO MAIN C.B.A. P6201)
P2502
GND 12
CAP FG(-) 11
CAP DIRECTION 10
CAP FG(+) 9
CAP TORQ.LIM 8
LD-M FWD(H) 7
V-REF 6
LD-M REV(H) 5
CAP ERROR 4
UNSW +5V(SYS.CTL) 3
UNSW +5V(SYS.CTL) 2
SW +14V 1

C2505 Z
C2508 0.1
C2509 0.1
R2505 2200:A,B,C,D 2400:E,F,G
C2519 1000P
R2501 1 1/8W:A,B,C,D 1/4W:E,F,G
R2502 1 1/8W:A,B,C,D 1/4W:E,F,G
C2506 0.01
C2504 0.01
C2507 0.01
C2517 0.1:A,B,C,D 2.2:E,F,G
C2510 0.1
C2523 Z
C2520 2.2
C2524 Z
C2521 2.2
C2525 Z
C2522 2.2
C2511 0.1

Q2501 (HALL TRANSISTOR) H1- VH- VH+ H1+
Q2502 (HALL TRANSISTOR) H2- VH- VH+ H2+
Q2503 (HALL TRANSISTOR) H3- VH- VH+ H3+

CAPSTAN COIL

IC2505 EZMPS300F12
(MR HEAD)
VCC OUT1 GND
1 2 3 4

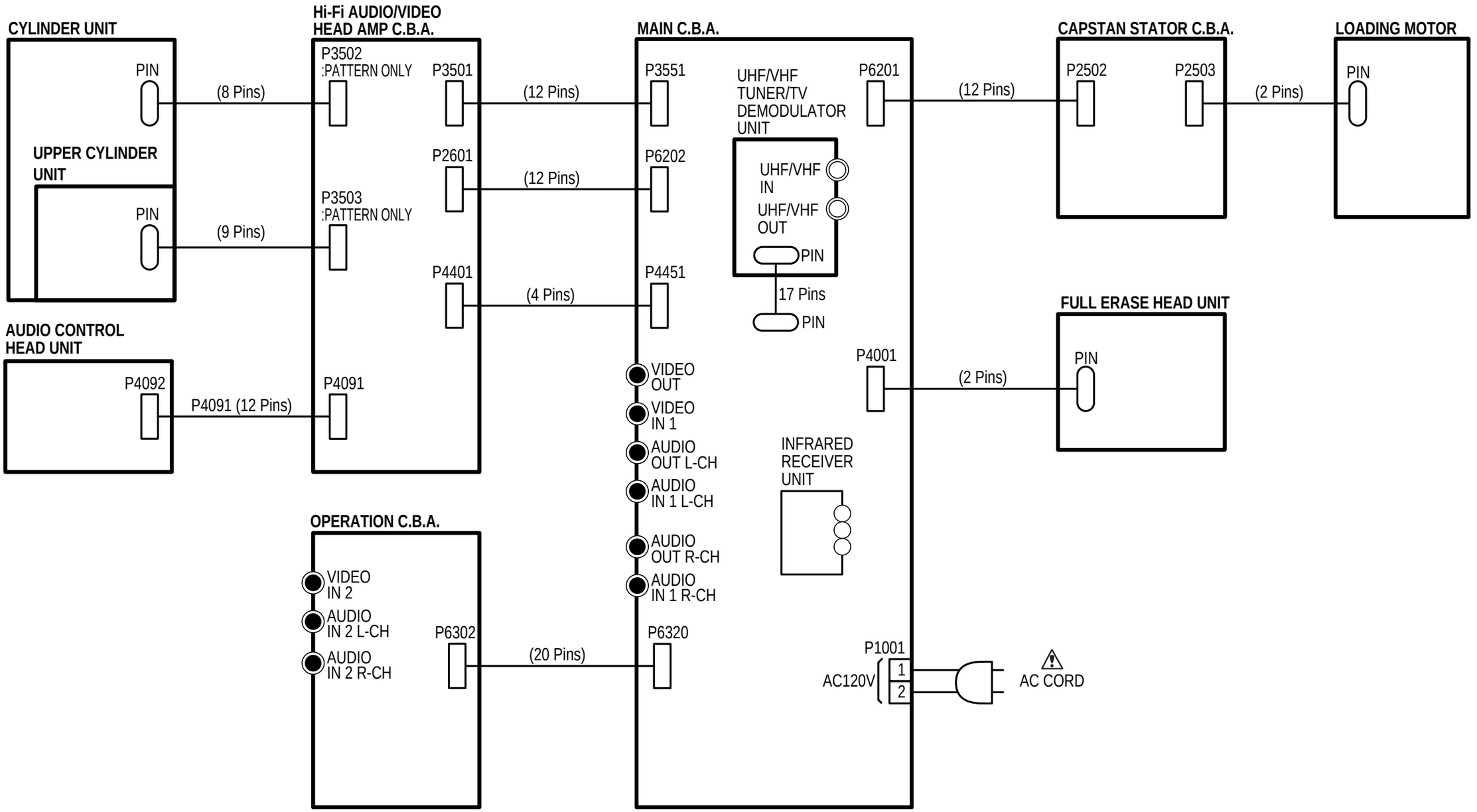
VJBS2007

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

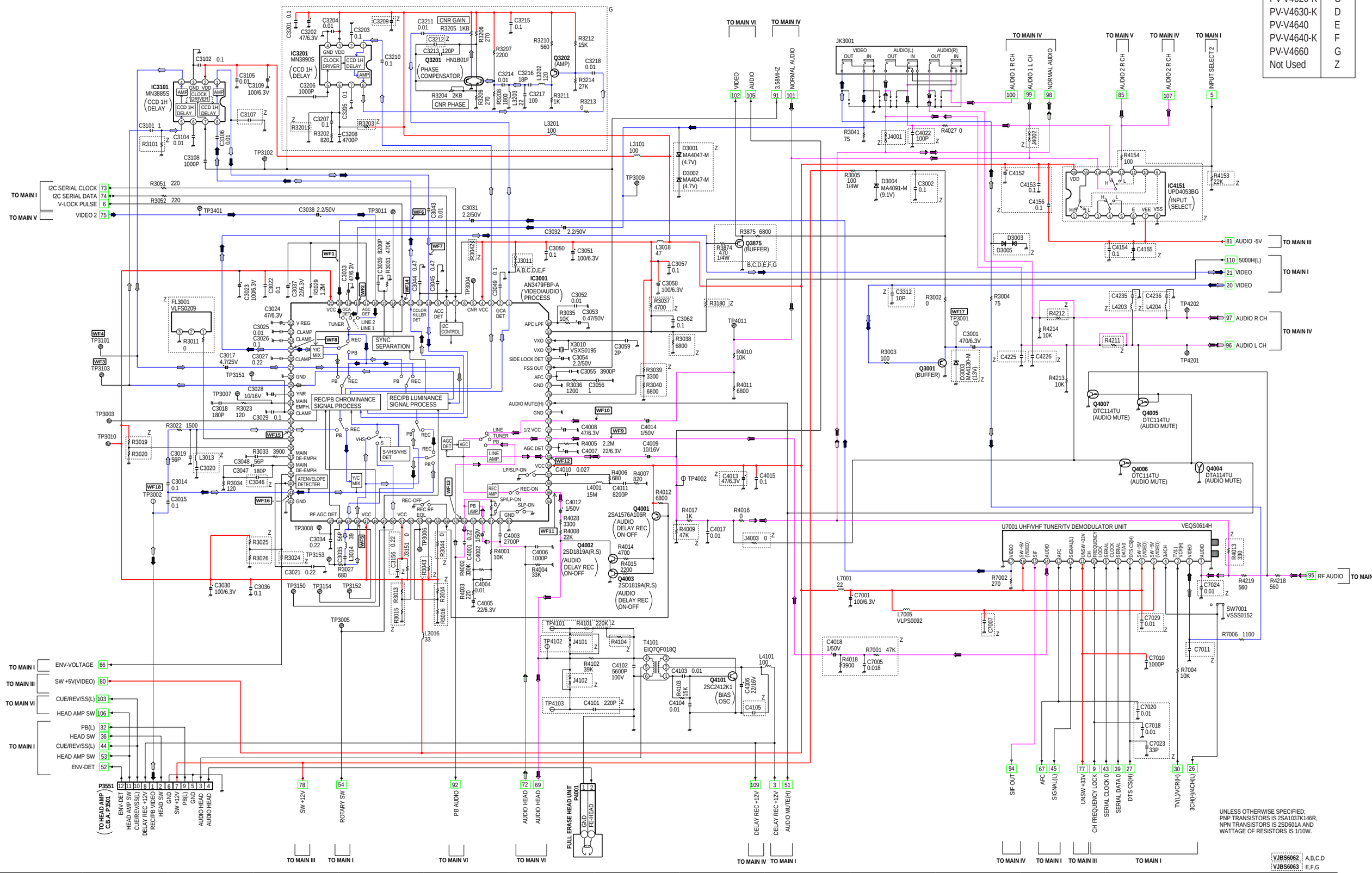


COMPARISON CHART OF MODELS & MARKS

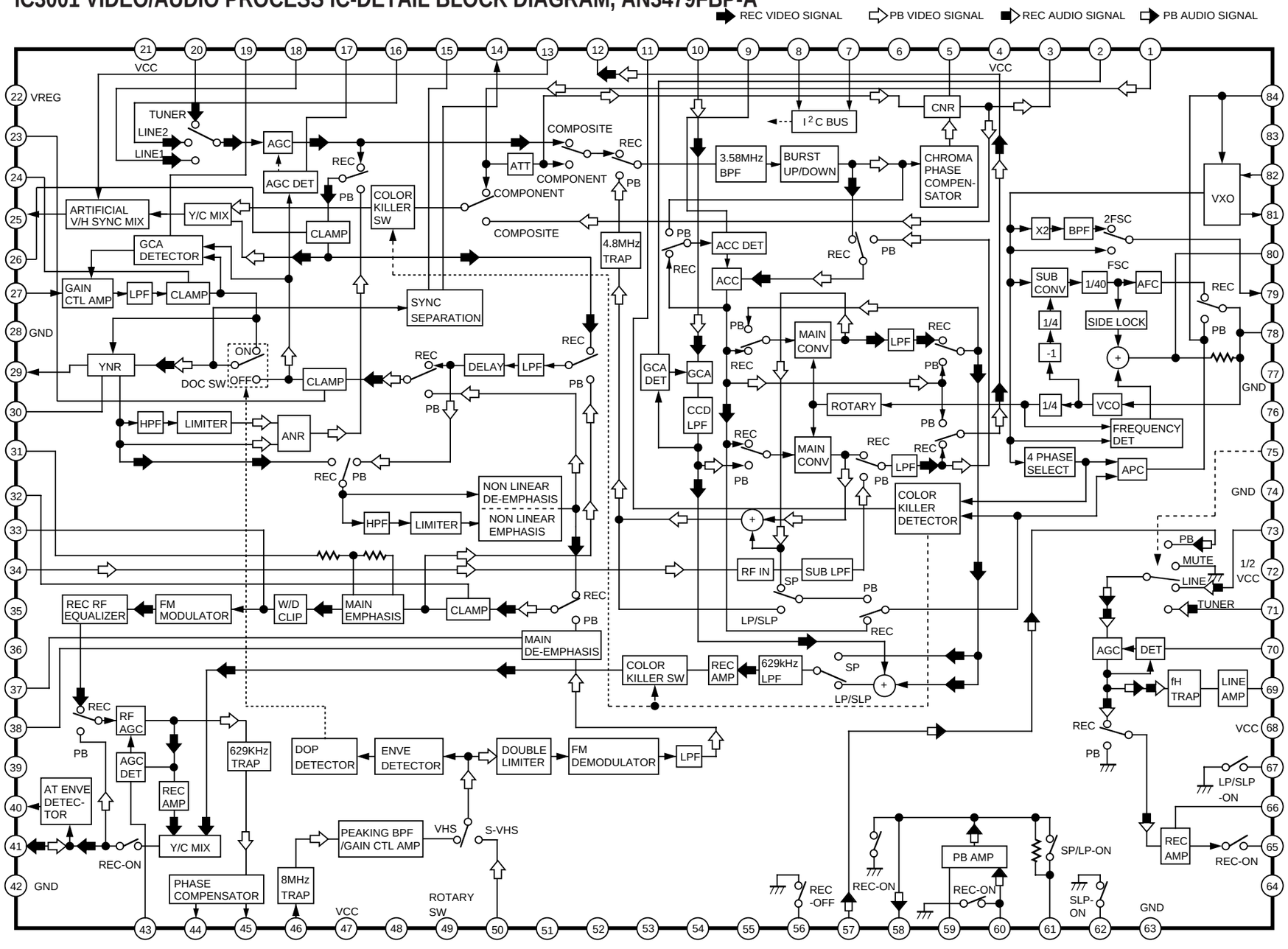
| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
CYLINDER SERVO



# IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |
| Not Used | Z |

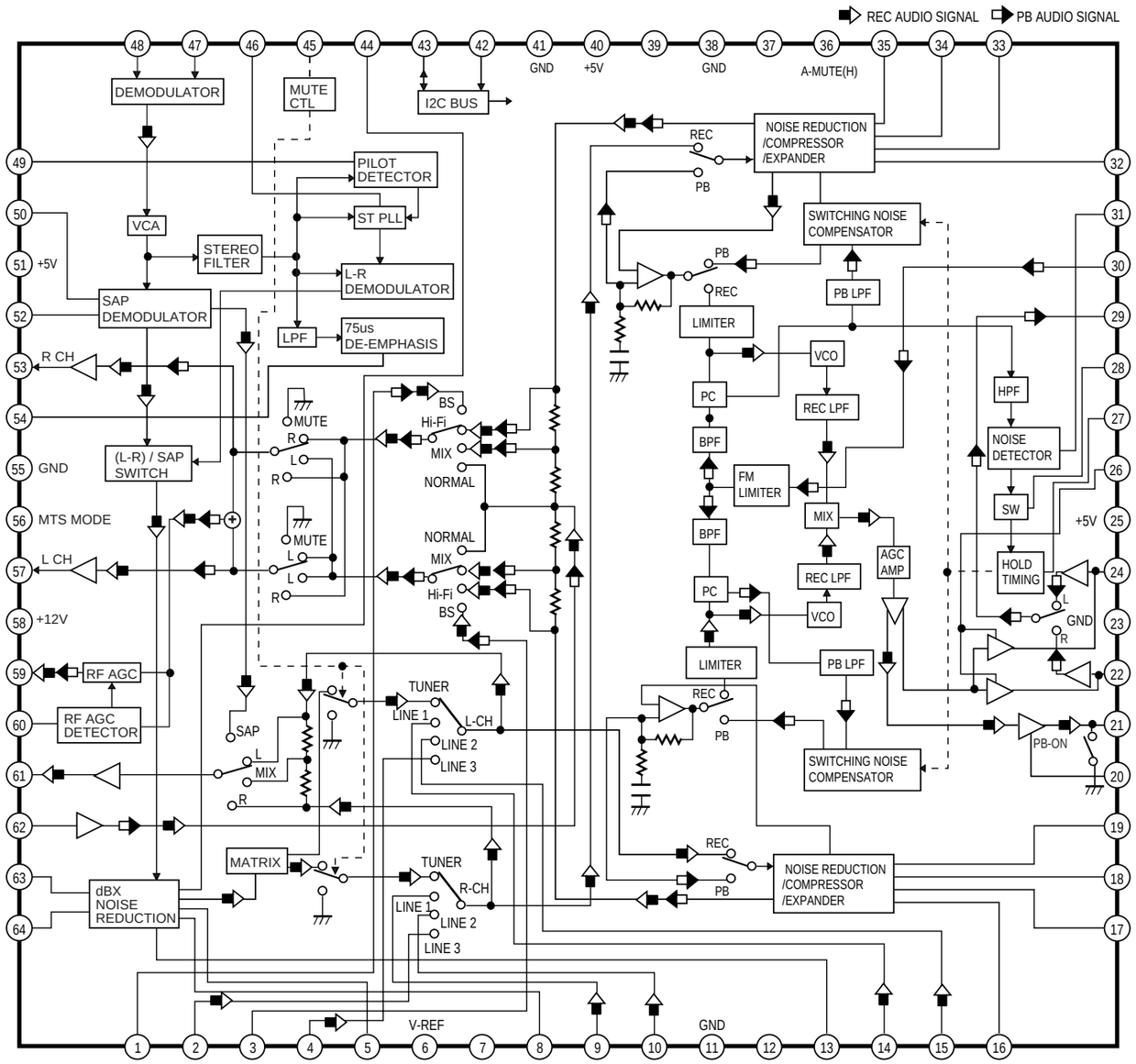
REC AUDIO SIGNAL
PB AUDIO SIGNAL

TO MAIN I
TO MAIN II
TO MAIN I
MTS MODE 64
SIF OUT 94
A-DEFEAT(H) 28
I2C SERIAL DATA 38
I2C SERIAL CLOCK 37
AUDIO MUTE(H) 46
TO MAIN III
SW +5V(VIDEO) 87
FL4901 VLFS0212
C4921 Z
C4913 0.01
R4901 1K
C4915 100/6.3V Z
C4916 0.1
R4902 Z
C4914 R4903 Z
C4917 0.1
C4907 Z
C4903 3.3/50V
C4902 2.2/50V
L4201 100
C4230 47/6.3V
C4231 0.1 Z
R4453 33K
R4456 Z
C4206 10/16V
C4208 10/16V
C4204 33/6.3V
R4216 Z
L4451 100
C4459 100/6.3V
C4458 0.1 Z
Q4201 (BUFFER) Z
R4229 0
R4230 2700
J4203
11 3.58MHZ
J4204 Z
91 3.58MHZ
R4227 0
C4234
C4237 Z
C4229 0.01
R4228 10K
TO MAIN I
TO MAIN II
C4212 0.015
C4227 0.22
R4220 Z
R4455 1500
D4209 MA165
R4221 1500
R4222 1500
109 DELAY REC +12V
TO MAIN II
C4920 0.1
C4919 0.1
C4918 0.1
GND VCC GND AUDIO MUTE(H)
MTS/SAP SIGNAL PROCESS
MTS MUTE CONTROL
I2C CONTROL
ENV DETECTOR
R-CH Hi-Fi AUDIO SIGNAL PROCESS
L-CH Hi-Fi AUDIO SIGNAL PROCESS
TP4205
TP4207
TP4206
R4226 1500
C4228 0.01
C4220 Z
C4908 Z
C4909
C4910 Z
WF35
C4210 10/16V
C4901 1/50V
WF36
C4209 10/16V
C4216 10/16V
WF37
C4217 22/6.3V
C4218 10/16V
C4911 0.022
C4904 3.3/50V
WF34
C4455 0.1
R4217 Z
C4451 0.01
R4451 Z
C4453 0.01 Z
R4223 10K
C4452 0.01
R4452 Z
C4454 0.01 Z
R4454 Z
C4457
C4456 0.1
C4211 0.015
C4207 10/16V
C4205 10/16V
AUDIO R CH 97
AUDIO L CH 96
RF AUDIO 95
NORMAL AUDIO 101
NORMAL AUDIO 98
TO MAIN II
R4210 1K
R4209 1K
J4202
J4201
R4224 33K
R4225 10K
C4219 1/50V
C4215 0.1 Z
C4214 100/16V
IC4201
AN3662FBP
(Hi-Fi AUDIO MTS/SAP PROCESS)
TUNER (R-CH) LINE1 LINE2
TUNER (L-CH) LINE1 LINE2
GND GND GND
WF38
R4215 Z
C4203 33/6.3V
R4207 8200
R4203 8200
C4232 Z
C4233 Z
C4912 0.1
C4213 10/16V
C4202 4.7/25V
C4905 10/16V
TP4208
C4201 4.7/25V
C4906 1/50V
R4205 47K
C4223 Z
D4205 MA4091 /RD9.1ESAB2 (9.1V)
D4207 MA4091 /RD9.1ESAB2 (9.1V)
R4201 47K
C4221 Z
D4201
D4203
TP4203
R4206 47K
R4208 8200
C4224 Z
D4206 MA4091 /RD9.1ESAB2 (9.1V)
D4208 MA4091 /RD9.1ESAB2 (9.1V)
R4202 47K
R4204 8200
C4222 Z
D4202
D4204
TP4204
88 AUDIO 2 L CH
99 AUDIO 1 L CH
107 AUDIO 2 R CH
100 AUDIO 1 R CH
TO MAIN V
TO MAIN II
P4451 (TO Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. P4401)
1 GND
2 Hi-Fi AUDIO L HEAD
3 Hi-Fi AUDIO L/R HEAD
4 Hi-Fi AUDIO R HEAD
10 Hi-Fi PB(H)
8 Hi-Fi HEAD SW
TO MAIN I
(TO SPATIALIZER C.B.A. P4501)
PIN 8 7 6 5 4 3 2 1
SPATIALIZER CTL
AUDIO L CH
GND
AUDIO R CH
SW +12V
AUDIO L CH
GND
AUDIO R CH
Z
86 SW +12V
TO MAIN III

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS6062 A,B,C,D
VJBS6063 E,F,G

# IC4201 Hi-Fi AUDIO MTS/SAP PROCESS IC-DETAIL BLOCK DIAGRAM, AN3662FBP



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

## MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

| MODE / PIN NO. | REC | PLAY |
|---|---|---|
| IC1001 | | |
| 1 | 5.3 | 5.3 |
| 2 | 4.4 | 4.4 |
| 3 | 0.6 | 0.6 |
| 4 | 2.0 | 2.0 |
| IC3001 | | |
| 1 | 4.9 | 4.9 |
| 2 | 3.3 | 3.3 |
| 3 | 2.0 | 2.1 |
| 4 | 4.9 | 4.9 |
| 5 | 4.2 | 4.2 |
| 6 | 1.8 | --- |
| 7 | 5.1 | 5.1 |
| 8 | 5.2 | --- |
| 9 | 2.2 | 2.2 |
| 10 | 2.7 | 2.7 |
| 11 | 0.8 | 0.8 |
| 12 | 2.7 | 2.7 |
| 13 | 0 | 0 |
| 14 | 0.3 | 0.3 |
| 15 | 1.1 | 1.1 |
| 16 | 3.0 | 3.6 |
| 17 | 2.3 | 1.7 |
| 18 | 3.0 | 3.3 |
| 19 | 2.6 | 2.6 |
| 20 | 3.0 | 3.1 |
| 21 | 5.0 | 5.0 |
| 22 | 2.0 | 2.0 |
| 23 | 2.4 | 2.3 |
| 24 | 2.3 | 2.1 |
| 25 | 2.0 | 2.0 |
| 26 | 2.4 | 2.3 |
| 27 | 2.0 | 1.9 |
| 28 | 0 | 0 |
| 29 | 1.8 | 1.8 |
| 30 | 1.8 | 1.8 |
| 31 | 2.0 | 2.1 |
| 32 | 2.2 | 2.3 |
| 33 | 1.9 | 2.0 |
| 34 | 2.7 | 2.7 |
| 35 | 2.0 | 2.2 |
| 36 | --- | 2.4 |
| 37 | 16.4 | 1.4 |
| 38 | 4.4 | 2.2 |
| 39 | 1.9 | 1.9 |
| 40 | 2.8 | 2.9 |
| 41 | 2.7 | 3.4 |
| 42 | 0 | 0 |
| 43 | 3.3 | 3.3 |
| 44 | --- | 2.5 |
| 45 | --- | 2.5 |
| 46 | --- | 2.5 |
| 47 | 5.0 | 5.0 |
| 48 | 1.1 | 0 |
| 49 | 1.5 | 2.6 |
| 50 | 4.0 | 0 |
| 51 | 5.0 | 5.0 |
| 52 | 1.2 | 2.5 |
| 53 | 2.4 | 2.4 |
| 54 | 1.8 | 2.4 |
| 55 | 2.0 | 2.0 |
| 56 | 5.0 | 4.3 |
| 57 | 2.5 | 2.5 |
| 58 | 2.5 | 0 |
| 59 | 2.5 | 0 |
| 60 | 2.5 | 0 |
| 61 | 2.5 | 2.5 |
| 62 | 0 | 0 |
| 63 | 0 | 0 |
| 64 | 2.0 | 2.4 |
| 65 | 2.5 | 2.6 |
| 66 | 2.5 | 2.6 |
| 67 | 2.5 | 2.5 |
| 68 | 5.0 | 5.1 |
| 69 | 2.6 | 0 |
| 70 | 0 | --- |
| 71 | 2.5 | 2.5 |
| 72 | 2.5 | 2.5 |
| 73 | 2.5 | 2.5 |
| 74 | 0 | -0.1 |
| 75 | 0 | -0.1 |
| 76 | 3.2 | -0.1 |
| 77 | 0 | 0 |
| 78 | 2.1 | 2.1 |
| 79 | 2.8 | 2.9 |
| 80 | 2.1 | 2.1 |
| 81 | 2.4 | 2.6 |
| 82 | --- | 2.7 |
| 83 | 2.5 | 2.5 |
| 84 | 2.4 | 2.3 |
| IC3101 | | |
| 1 | 3.0 | 3.0 |
| 2 | 5.0 | 5.0 |
| 3 | 0 | 0 |
| 4 | 3.0 | 3.0 |
| 5 | 2.9 | 2.9 |
| 6 | -2.6 | -3.5 |
| 7 | 2.1 | 2.1 |
| 8 | 3.3 | 3.5 |
| IC3201 | | |
| 1 | 2.9 | 2.9 |
| 2 | -2.6 | -2.6 |
| 3 | 5.0 | 5.0 |
| 4 | 0 | 0 |
| 5 | 2.1 | 2.1 |
| 6 | 2.1 | 2.1 |
| 7 | 2.1 | 2.1 |
| 8 | 3.0 | 3.0 |
| IC3801 | | |
| 1 | 5.0 | 5.0 |
| 2 | 1.0 | 0.9 |
| 3 | 2.9 | 3.0 |
| 4 | 2.9 | 3.0 |
| 5 | 2.9 | 2.3 |
| 6 | --- | --- |
| 7 | 3.0 | 3.0 |
| 8 | 0 | 0 |
| 9 | --- | --- |
| 10 | 3.0 | 3.0 |
| 11 | 4.9 | 4.9 |
| 12 | 1.3 | 1.3 |
| 13 | 1.3 | 1.3 |
| 14 | 4.5 | 4.5 |
| 15 | 1.0 | 1.0 |
| 16 | 4.7 | 4.7 |
| 17 | 2.8 | 2.8 |
| 18 | 0.6 | 0.6 |
| 19 | 1.8 | 1.8 |
| 20 | 1.9 | 2.0 |
| 21 | 3.2 | 3.2 |
| 22 | 1.7 | 1.7 |
| 23 | --- | --- |
| 24 | 1.7 | 1.7 |
| 25 | 4.9 | 4.9 |
| 26 | --- | --- |
| 27 | --- | --- |
| 28 | 2.9 | 2.9 |
| 29 | 2.5 | 2.5 |
| 30 | 3.1 | 3.1 |
| 31 | 3.0 | 3.1 |
| 32 | 2.3 | 2.4 |
| 33 | 2.8 | 2.8 |
| 34 | 2.9 | 2.9 |
| 35 | 5.0 | 5.0 |
| 36 | 0 | 0 |
| IC4201 | | |
| 1 | 2.0 | 2.3 |
| 2 | 0 | 0 |
| 3 | 2.4 | 2.2 |
| 4 | 0 | 0 |
| 5 | 2.2 | 2.2 |
| 6 | 2.5 | 2.4 |
| 7 | 2.0 | 2.1 |
| 8 | 0.4 | 0.3 |
| 9 | 0 | 0 |
| 10 | 0.2 | 0.2 |
| 11 | 0 | 0 |
| 12 | 2.0 | 2.1 |
| 13 | 2.3 | 2.3 |
| 14 | 0 | 0 |
| 15 | 2.5 | 0.2 |
| 16 | 2.5 | 2.5 |
| 17 | 0.6 | 0.7 |
| 18 | 2.5 | 2.5 |
| 19 | 2.5 | 2.4 |
| 20 | 2.5 | 0 |
| 21 | 2.5 | 0 |
| 22 | 2.5 | 0.7 |
| 23 | 0 | 0 |
| 24 | 2.5 | 0.7 |
| 25 | 4.9 | 5.0 |
| 26 | 2.5 | 0 |
| 27 | 0 | 2.6 |
| 28 | 3.8 | 3.8 |
| 29 | 4.0 | 1.8 |
| 30 | 1.9 | 0.9 |
| 31 | 1.1 | 1.8 |
| 32 | 2.5 | 2.4 |
| 33 | 2.5 | 2.4 |
| 34 | 0.7 | 0.6 |
| 35 | 2.5 | 2.4 |
| 36 | 0 | 0 |
| 37 | 1.6 | 1.8 |
| 38 | 0 | 0 |
| 39 | 0.1 | 0.1 |
| 40 | 4.9 | 4.9 |
| 41 | 0 | 0 |
| 42 | 5.1 | 5.1 |
| 43 | 5.2 | 5.2 |
| 44 | 2.3 | 2.3 |
| 45 | 5.1 | 5.1 |
| 46 | 3.6 | 3.6 |
| 47 | 1.8 | 1.4 |
| 48 | 2.2 | 2.2 |
| 49 | 3.6 | 3.6 |
| 50 | 3.5 | 3.4 |
| 51 | 5.1 | 5.1 |
| 52 | 3.5 | 3.5 |
| 53 | 5.9 | -0.1 |
| 54 | 2.3 | 2.3 |
| 55 | 0 | 0 |
| 56 | 0.1 | 0.1 |
| 57 | 5.9 | 5.8 |
| 58 | 12.1 | -0.1 |
| 59 | 5.9 | 5.8 |
| 60 | 0.6 | -0.1 |
| 61 | 2.5 | -0.1 |
| 62 | 2.4 | -0.1 |
| 63 | 2.3 | 2.3 |
| 64 | 0.4 | 0.4 |
| IC6301 | | |
| 1 | -29.7 | -29.7 |
| 2 | 0 | 0 |
| 3 | 2.5 | 2.5 |
| 4 | 1.3 | 0.1 |
| 5 | 2.5 | 2.5 |
| 6 | 0 | 0 |
| 7 | 5.2 | 5.2 |
| 8 | --- | --- |
| 9 | --- | --- |
| 10 | --- | --- |
| 11 | -29.5 | -29.5 |
| 12 | -29.5 | -29.5 |
| 13 | -29.5 | -29.5 |
| 14 | -29.5 | -29.5 |
| 15 | -29.5 | -29.5 |
| 16 | -29.5 | -29.5 |
| 17 | -29.5 | -29.5 |
| 18 | -29.5 | -29.5 |
| 19 | -29.5 | -29.5 |
| 20 | -29.5 | -29.5 |
| 21 | -29.5 | -29.5 |
| 22 | -29.5 | -29.5 |
| 23 | -26.3 | -26.3 |
| 24 | -26.3 | -26.3 |
| 25 | -26.3 | -26.3 |
| 26 | -26.3 | -26.3 |
| 27 | -26.3 | -26.3 |
| 28 | -26.3 | -26.3 |
| IC6303 | | |
| 1 | -22.9 | -22.8 |
| 2 | --- | --- |
| 3 | --- | --- |
| 4 | -25.9 | -26.5 |
| 5 | -25.1 | -26.4 |
| 6 | -26.5 | -26.5 |
| 7 | -26.4 | -26.3 |
| 8 | -26.4 | -26.3 |
| 9 | -26.4 | -26.3 |
| 10 | -26.4 | -26.3 |
| 11 | --- | --- |
| 12 | -26.3 | -26.3 |
| 13 | -26.5 | -26.2 |
| 14 | -26.5 | -26.3 |
| 15 | -26.4 | -26.3 |
| 16 | -29.7 | -29.7 |
| 17 | --- | --- |
| 18 | 5.2 | 5.2 |
| 19 | 2.5 | 2.5 |
| 20 | 2.7 | 2.4 |
| 21 | 0 | 0 |
| 22 | 4.3 | 4.2 |
| 23 | 5.1 | 5.1 |
| 24 | 1.3 | 0.1 |
| 25 | --- | --- |
| 26 | --- | --- |
| 27 | --- | --- |
| 28 | --- | --- |
| 29 | --- | --- |
| 30 | --- | --- |
| 31 | -5.2 | 0 |
| 32 | -7.6 | 0 |
| 33 | -13.3 | -10.0 |
| 34 | -4.0 | -10.0 |
| 35 | -7.1 | -4.0 |
| 36 | -10. | -3.7 |
| 37 | -10.4 | -7.0 |
| 38 | -16.4 | -9.9 |
| 39 | -29.5 | -29.4 |
| 40 | -29.5 | -29.4 |
| 41 | -29.5 | -29.4 |
| 42 | -29.2 | -29.4 |
| 43 | -29.2 | -26.1 |
| 44 | -26.2 | -29.4 |
| Q1001 | | |
| E | 0 | 0 |
| C | 164.5 | 164.6 |
| B | 0.3 | 0.3 |
| Q1002 | | |
| E | 0 | 0 |
| C | 0.3 | 0.3 |
| B | 0.6 | 0.6 |
| Q1003 | | |
| E | 0 | -0.1 |
| C | 4.0 | 4.1 |
| B | -0.6 | -0.6 |
| Q1004 | | |
| E | 4.1 | 4.1 |
| C | 0 | 0 |
| B | 4.4 | 4.4 |
| Q1005 | | |
| E | 4.7 | 4.7 |
| C | 5.2 | 5.2 |
| B | 5.3 | 5.3 |
| Q1051 | | |
| E | 12.1 | 12.0 |
| C | 14.3 | 14.4 |
| B | 9.3 | 9.4 |
| Q1052 | | |
| E | 0.6 | 0.5 |
| C | 9.1 | 9.3 |
| B | 0 | 0 |
| Q1053 | | |
| E | 5.1 | 5.1 |
| C | 5.2 | 5.2 |
| B | 5.9 | 5.9 |
| Q1080 | | |
| E | 23.5 | 23.4 |
| C | 13.8 | 13.8 |
| B | 23.5 | 23.3 |
| Q1081 | | |
| E | 0 | 0 |
| C | 23.4 | 23.3 |
| B | -0.1 | -0.2 |
| Q1082 | | |
| E | 14.6 | 14.6 |
| C | 14.5 | 14.5 |
| B | 13.8 | 13.9 |
| Q1083 | | |
| E | 0 | 0 |
| C | 0.1 | 0.1 |
| B | .07 | 0.7 |
| Q3001 | | |
| E | 1.9 | 1.9 |
| C | 0 | 0 |
| B | 2.6 | 2.7 |
| Q3201 | | |
| E1 | 2.3 | 2.3 |
| C1 | 0 | 0 |
| B1 | 1.6 | 1.6 |
| E2 | 1.6 | 1.6 |
| C2 | 3.5 | 3.5 |
| B2 | 2.3 | 2.3 |
| Q3202 | | |
| E | 4.0 | 0 |
| C | 1.9 | 1.9 |
| B | 3.3 | 3.3 |
| Q3875 | | |
| E | 2.8 | 2.8 |
| C | 0 | 0 |
| B | 2.0 | 2.0 |
| Q4001 | | |
| E | 5.1 | 4.3 |
| C | -22.0 | 5.0 |
| B | 5.1 | 5.1 |
| Q4002 | | |
| E | -22.0 | 0.7 |
| C | 0 | 0 |
| B | -13 | 0 |
| Q4003 | | |
| E | -22.0 | 0.7 |
| C | 0 | 0 |
| B | -13.0 | 0 |
| Q4004 | | |
| E | 0 | 0 |
| C | -4.5 | -4.5 |
| B | 0 | 0 |
| Q4005 | | |
| E | -4.7 | -4.7 |
| C | 0 | 0 |
| B | 0 | 0 |
| Q4006 | | |
| E | -4.3 | -4.3 |
| C | 0 | 0 |
| B | 0 | 0 |
| Q4007 | | |
| E | -4.6 | -4.6 |
| C | 0 | 0 |
| B | 0 | 0 |
| Q4101 | | |
| E | 0.1 | 0 |
| C | 11.6 | 0 |
| B | 0 | 0 |
| TP1001 | 0 | 0 |
| TP1002 | 32.2 | 32.3 |
| TP1003 | 14.3 | 14.5 |
| TP1004 | -29.8 | -29.8 |
| TP1005 | 5.2 | 5.3 |
| TP1006 | 5.3 | 5.3 |
| TP1007 | 0 | 0 |
| TP1008 | 5.2 | 5.3 |
| TP1009 | 0 | 0 |
| TP1050 | 5.1 | 5.2 |
| TP1051 | 5.3 | 5.3 |
| TP1058 | 12.1 | 12.1 |
| TP1080 | 0 | 0 |
| TP1081 | 13.6 | 13.7 |
| TP3001 | 2.6 | 2.7 |
| TP3002 | 2.7 | 2.3 |
| TP3003 | 1.9 | 2.1 |
| TP3004 | 4.2 | 4.3 |
| TP3005 | 2.5 | 2.6 |
| TP3006 | 2.4 | 2.5 |
| TP3007 | 1.9 | 1.6 |
| TP3008 | 3.3 | 3.3 |
| TP3009 | 0 | 0 |
| TP3010 | 4.9 | 5.0 |
| TP3011 | 0.3 | 0.4 |
| TP3101 | 2.9 | 3.1 |
| TP3102 | 2.8 | 3.0 |
| TP3103 | 1.8 | 1.9 |
| TP3150 | 4.1 | 3.1 |
| TP3151 | 2.3 | 2.4 |
| TP3152 | 2.5 | 2.6 |
| TP3153 | 2.5 | 2.6 |
| TP3154 | 1.1 | 1.2 |
| TP3401 | 0 | 0 |
| TP3801 | 0 | 0 |
| TP3802 | 0 | 0 |
| TP3803 | 0 | 0 |
| TP3804 | 0 | 0 |
| TP3805 | 5.0 | 5.1 |
| TP4002 | 0 | 0 |
| TP4003 | 0 | 0 |
| TP4011 | 0 | 0 |
| TP4101 | 0 | 0 |
| TP4102 | 0 | 0 |
| TP4103 | 0 | 0 |
| TP4201 | 0 | 0 |
| TP4202 | 0 | 0 |
| TP4203 | 0 | 0 |
| TP4204 | 0 | 0 |
| TP4205 | 3.9 | 1.8 |
| TP4206 | 3.8 | 3.8 |
| TP4208 | 0.3 | 0.4 |
| TP4207 | 1.9 | 0.9 |
| TP6303 | 5.1 | 5.1 |
| TP6304 | 5.1 | 5.1 |
| TP6305 | 0 | --- |
| TP6306 | 5.1 | 5.1 |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

## MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| IC2601 | | | |
| 1 | 13.8 | 13.8 | 14.2 |
| 2 | 13.8 | 13.8 | 14.2 |
| 3 | 14.3 | 14.3 | 14.7 |
| 4 | 1.1 | 1.1 | 1.2 |
| 5 | 5.2 | 5.2 | 5.3 |
| 6 | 0.8 | 0.8 | 0.9 |
| 7 | 0.9 | 0.9 | 0.9 |
| 8 | 0.6 | 0.6 | 0.6 |
| 9 | --- | 2.7 | 2.9 |
| 10 | 1.4 | 1.4 | 1.5 |
| 11 | 0 | 0 | 0 |
| 12 | 3.9 | 3.9 | 3.9 |
| 13 | 3.9 | 3.9 | 3.9 |
| 14 | 3.9 | 3.9 | 3.9 |
| 15 | --- | 0.1 | 0.1 |
| 16 | 13.8 | 13.8 | 14.2 |
| IC6001 | | | |
| 1 | 5.2 | 5.2 | 5.3 |
| 2 | 0 | 0 | 0 |
| 3 | --- | --- | 5.0 |
| 4 | --- | --- | 0.2 |
| 5 | 4.7 | 4.7 | 4.9 |
| 6 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 |
| 8 | 4.7 | 4.7 | 4.8 |
| 9 | 0.1 | 0.1 | 0.2 |
| 10 | 5.1 | 5.1 | 5.1 |
| 11 | 4.9 | 4.9 | 5.0 |
| 12 | 0 | 0 | 0 |
| 13 | 4.9 | 4.9 | 4.9 |
| 14 | 5.0 | 5.0 | 5.1 |
| 15 | 4.8 | 3.4 | 4.9 |
| 16 | 5.0 | 5.0 | 5.1 |
| 17 | 5.2 | 4.9 | 5.2 |
| 18 | 5.0 | 5.1 | 5.1 |
| 19 | 5.1 | 5.1 | 5.1 |
| 20 | 5.1 | 5.1 | 5.1 |
| 21 | 0 | 0 | 2.6 |
| 22 | --- | --- | 0 |
| 23 | 1.5 | 2.6 | 5.1 |
| 24 | 0 | 0 | 0 |
| 25 | --- | --- | --- |
| 26 | 0 | 0 | 0 |
| 27 | 0 | 2.6 | 2.6 |
| 28 | 5.1 | 0 | 0 |
| 29 | 3.8 | 3.8 | 1.5 |
| 30 | 0 | 0 | 0 |
| 31 | 0 | 0 | 0 |
| 32 | 0 | 0 | 0 |
| 33 | --- | 2.3 | 2.6 |
| 34 | 2.4 | 2.5 | 0 |
| 35 | 2.4 | 2.4 | 2.5 |
| 36 | 5.1 | 5.1 | 5.2 |
| 37 | --- | --- | 2.7 |

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| 38 | --- | --- | 2.6 |
| 39 | 0 | 0 | 0 |
| 40 | 4.7 | 4.7 | 4.7 |
| 41 | 4.7 | 4.8 | 4.7 |
| 42 | 0 | 0 | 0 |
| 43 | 4.7 | 4.7 | 4.7 |
| 44 | 4.7 | 4.7 | 4.7 |
| 45 | 4.7 | 4.7 | 4.8 |
| 46 | 4.7 | 4.7 | 4.8 |
| 47 | 1.9 | 2.0 | 2.0 |
| 48 | 0 | 0 | 0 |
| 49 | 1.9 | 1.9 | 2.0 |
| 50 | 2.7 | 2.7 | 2.7 |
| 51 | 5.2 | 5.2 | 5.3 |
| 52 | 2.5 | 2.6 | 2.7 |
| 53 | 2.5 | 2.6 | 2.7 |
| 54 | 0 | 0 | 0 |
| 55 | 0 | 0 | 0 |
| 56 | 5.1 | 5.1 | 5.2 |
| 57 | 4.6 | 4.6 | 4.7 |
| 58 | 0 | 0 | 0.1 |
| 59 | 0 | 0 | 0 |
| 60 | 5.1 | 5.1 | 5.1 |
| 61 | 0.3 | 0.2 | 0.2 |
| 62 | 5.1 | 0 | 5.2 |
| 63 | 5.1 | 5.1 | 5.1 |
| 64 | 0 | 0 | 0 |
| 65 | 1.1 | 0.9 | 1.2 |
| 66 | 0 | 0 | 0 |
| 67 | 0.2 | 2.6 | 0 |
| 68 | --- | --- | 2.6 |
| 69 | 2.5 | 2.5 | 2.6 |
| 70 | 2.5 | -0.1 | 2.6 |
| 71 | 0 | -0.1 | 0 |
| 72 | 2.5 | --- | 2.6 |
| 73 | 5.1 | 5.1 | 5.2 |
| 74 | 1.9 | 1.6 | 2.5 |
| 75 | 1.5 | 1.6 | 2.6 |
| 76 | 2.5 | 2.5 | 2.6 |
| 77 | 1.8 | 0.2 | 2.6 |
| 78 | 3.4 | 2.8 | 3.4 |
| 79 | 4.6 | 3.7 | 4.7 |
| 80 | --- | --- | 4.7 |
| 81 | 4.9 | 4.9 | 4.9 |
| 82 | 0 | 0 | 0.2 |
| 83 | 0 | 0 | 0.1 |
| 84 | 0 | 0 | 0 |
| 85 | 1.7 | 0.1 | 2.2 |
| 86 | 1.7 | 0 | 2.6 |
| 87 | 5.2 | 5.2 | 5.3 |
| 88 | 5.2 | 5.2 | 5.3 |
| 89 | 5.2 | 5.2 | 5.3 |
| 90 | 5.2 | 5.2 | 5.3 |
| 91 | 5.0 | 5.0 | 5.1 |
| 92 | 0 | 0 | 0 |

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| 93 | 5.0 | 5.0 | 5.1 |
| 94 | 5.0 | 5.0 | 5.1 |
| 95 | 0 | 0 | 5.1 |
| 96 | 5.2 | 4.9 | 0 |
| 97 | 0 | 0 | 5.1 |
| 98 | 1.5 | 2.6 | 0 |
| 99 | 5.1 | 5.1 | 5.1 |
| 100 | 0.2 | 0 | 0.4 |
| IC6002 | | | |
| 1 | 1.1 | 1.1 | 1.2 |
| 2 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 |
| 4 | --- | --- | 0.1 |
| IC6003 | | | |
| 1 | --- | 2.3 | 2.4 |
| 2 | 1.1 | 1.1 | 1.2 |
| 3 | 0 | 0 | 0 |
| 4 | --- | --- | 0.2 |
| IC6005 | | | |
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 |
| 5 | 5.2 | 5.2 | 5.2 |
| 6 | 5.1 | 5.1 | 5.1 |
| 7 | 0 | 0 | 0 |
| 8 | 5.2 | 5.2 | 5.3 |
| | | | |
| Q6001 | | | |
| E | 0 | 0 | 0 |
| C | --- | --- | 5.1 |
| B | 0 | 0 | 0 |
| Q6002 | | | |
| E | 11.2 | 12.0 | 12.1 |
| C | 11.8 | 0 | 0 |
| B | 12.0 | 12.1 | 12.1 |
| Q6003 | | | |
| E | 5.1 | 0 | 0 |
| C | 11.2 | 12.0 | 12.1 |
| B | 4.5 | 0 | 0 |
| Q6005 | | | |
| E | 4.3 | 4.3 | 4.4 |
| C | 5.1 | 5.1 | 5.2 |
| B | 5.2 | 5.2 | 5.3 |
| Q6006 | | | |
| E | 0.7 | 0.7 | 0.8 |
| C | 0.1 | 0.1 | 0.1 |
| B | 0 | 0 | 0 |
| Q6007 | | | |
| E | 0.1 | 0.1 | 0.1 |
| C | 5.1 | 5.1 | 5.2 |
| B | 5.1 | 5.1 | 5.2 |

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| Q6009 | | | |
| E | 0 | 0 | 0 |
| C | 5.1 | 5.1 | 5.2 |
| Q6010 | | | |
| E | 0 | 0 | 0 |
| C | 5.0 | 5.1 | 4.8 |
| | | | |
| TP6001 | --- | --- | 5.2 |
| TP6002 | --- | --- | 0.2 |
| TP6003 | 3.4 | 2.9 | 2.9 |
| TP6004 | 5.0 | 5.2 | 5.1 |
| TP6005 | 5.0 | 5.1 | 5.1 |
| TP6007 | 0 | 0 | 0 |
| TP6008 | 0 | 0 | 0 |
| TP6009 | 5.2 | 5.3 | 5.3 |
| TP6010 | 5.3 | 5.3 | 5.3 |
| TP6011 | 5.2 | 5.2 | 5.2 |
| TP6014 | 0 | 0 | 0 |
| TP6016 | 3.5 | 3.5 | 3.5 |
| TP6017 | 0 | 0 | 5.3 |
| TP6018 | 5.2 | 5.3 | 0 |
| TP6019 | 0 | 0 | 5.3 |
| TP6201 | 2.3 | 0.2 | 0 |
| TP6202 | 2.4 | 2.5 | 4.1 |
| TP6203 | 2.5 | 2.6 | 2.6 |
| TP6204 | 1.1 | 1.2 | 5.3 |
| TP6205 | 2.6 | 2.6 | 0.1 |
| TP6206 | 2.9 | 2.6 | 2.6 |
| TP6207 | 2.5 | 2.6 | 2.6 |
| TP6208 | 2.5 | 2.6 | 4.1 |
| TP6209 | 2.3 | 2.5 | 2.6 |
| TP6210 | 2.3 | 0.8 | 2.3 |

## CAPSTAN STATOR C.B.A. (A, B, C, D)

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| P2502 | | | |
| 1 | 13.6 | 13.6 | 14.3 |
| 2 | 5.2 | 5.2 | 5.2 |
| 3 | 5.3 | 5.3 | 5.3 |
| 4 | 2.5 | 2.4 | 2.6 |
| 5 | 0 | 0 | 0 |
| 6 | 2.6 | 2.6 | 2.6 |
| 7 | 0 | 0 | 0 |
| 8 | 0.5 | 0.5 | 0.5 |
| 9 | 2.6 | 2.6 | 2.6 |
| 10 | 0.1 | 0.1 | 2.6 |
| 11 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 |
| P2503 | | | |
| 1 | 1.8 | 1.7 | 1.5 |
| 2 | 1.8 | 1.7 | 1.5 |

## CAPSTAN STATOR C.B.A. (E, F, G)

| MODE / PIN NO. | REC | PLAY | STOP |
|---|---|---|---|
| P2502 | | | |
| 1 | 13.6 | 13.8 | 14.3 |
| 2 | 5.2 | 5.2 | 5.2 |
| 3 | 5.3 | 5.3 | 5.3 |
| 4 | 2.2 | 2.4 | 2.6 |
| 5 | 0 | 0 | 0 |
| 6 | 2.6 | 2.6 | 2.6 |
| 7 | 0 | 0 | 0 |
| 8 | 0.5 | 0.6 | 0.5 |
| 9 | 2.6 | 2.6 | 2.7 |
| 10 | 0.1 | 0.1 | 2.6 |
| 11 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 |
| P2503 | | | |
| 1 | 2.5 | 4.2 | 4.2 |
| 2 | 3.3 | 4.3 | 4.3 |

COMPARISON CHART
OF MODELS & MARKS

| MODEL | MARK |
|---|---|
| PV-V4600 | A |
| PV-V4620 | B |
| PV-V4620-K | C |
| PV-V4630-K | D |
| PV-V4640 | E |
| PV-V4640-K | F |
| PV-V4660 | G |

## Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.

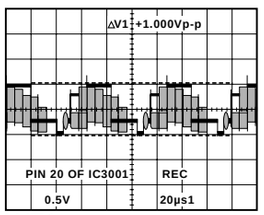
| MODE / PIN NO. | REC | PLAY |
|---|---|---|
| IC3501 | | |
| 1 | 2.6 | 2.6 |
| 2 | 0.2 | 4.2 |
| 3 | 0 | 1.4 |
| 4 | 0 | 0.7 |
| 5 | 0 | 0 |
| 6 | 0 | 0.7 |
| 7 | 0 | 1.4 |
| 8 | 0 | 0 |
| 9 | 0 | 0 |
| 10 | 0 | 2.1 |
| 11 | 0 | 0 |
| 12 | 0 | 0 |
| 13 | 0 | 0 |
| 14 | 0 | 0 |
| 15 | 0 | 0 |
| 16 | 5.9 | 0 |
| 17 | 5.9 | 0.1 |
| 18 | 6.3 | 0 |
| 19 | --- | --- |
| 20 | --- | --- |
| 21 | --- | --- |
| 22 | --- | --- |
| 23 | --- | --- |
| 24 | --- | --- |
| 25 | 11.8 | 0 |
| 26 | 5.0 | 5.2 |
| 27 | 0 | 0 |
| 28 | 0 | 0 |
| 29 | 0 | 0 |
| 30 | 2.7 | 0 |
| 31 | 5.1 | 0 |
| 32 | 5.0 | 0.3 |
| 33 | 0 | 0 |
| 34 | 0.2 | 0.4 |
| 35 | 11.9 | 12.0 |
| 36 | 0.3 | 4.9 |
| | | |
| TP3501 | 0 | 0 |

## OPERATION C.B.A.

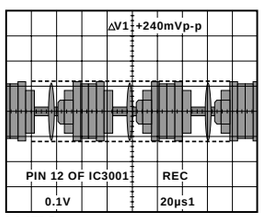
| MODE / PIN NO. | REC | PLAY |
|---|---|---|
| IC6401 | | |
| 1 | 0 | 0 |
| 2 | 0 | 0 |
| 3 | 5.1 | 5.1 |
| 4 | --- | --- |
| 5 | --- | --- |
| 6 | 0 | 0 |
| 7 | 0 | 0 |
| 8 | 0 | 0 |
| 9 | 5.1 | 5.1 |
| 10 | 2.6 | 2.6 |
| 11 | 2.6 | 2.6 |
| 12 | 0 | 0 |
| 13 | 5.1 | 5.1 |
| 14 | 5.1 | 5.1 |
| 15 | 5.1 | 5.1 |
| 16 | 5.1 | 5.1 |
| 17 | 5.1 | 5.1 |
| 18 | 5.1 | 5.1 |
| 19 | 5.1 | 5.1 |
| 20 | 5.1 | 5.1 |
| 21 | 5.1 | 5.1 |
| 22 | 5.1 | 5.1 |
| 23 | 0 | 0 |
| 24 | 0 | 0 |
| 25 | 0 | 0 |
| 26 | 0 | 0 |
| 27 | 0 | 0 |
| 28 | 0 | 0 |
| IC6403 | | |
| 1 | 5.1 | 5.1 |
| 2 | 5.1 | 5.1 |
| 3 | 0 | 0 |
| | | |
| Q6401 | | |
| E | 0 | 0 |
| C | 0 | 0 |
| B | 11.0 | 11.0 |

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

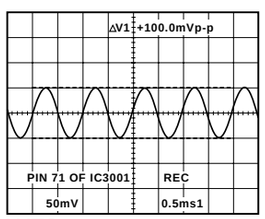
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



WF1



WF6



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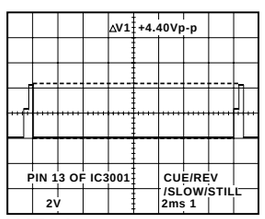

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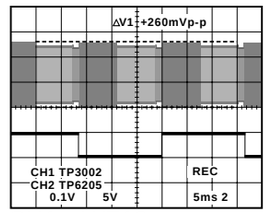
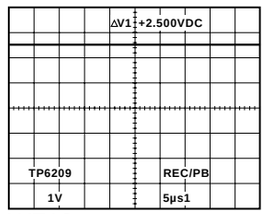


CH1 WF18
CH2 WF22



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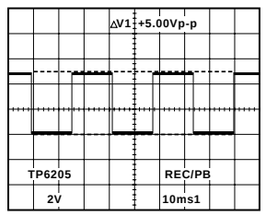
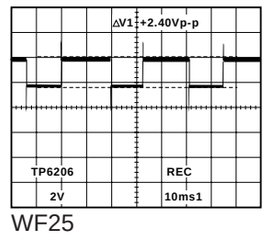


WF22



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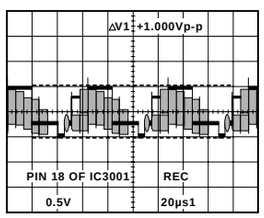

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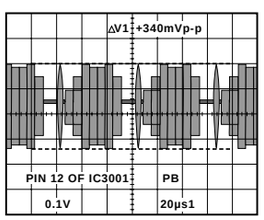

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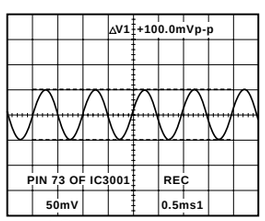
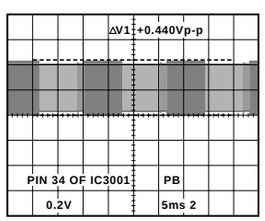


WF10



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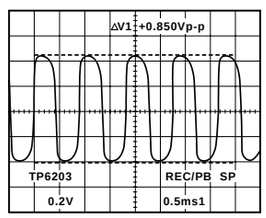

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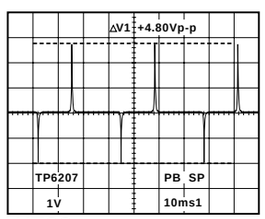

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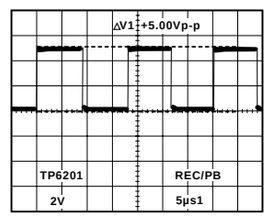
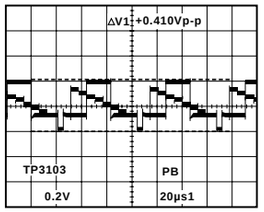
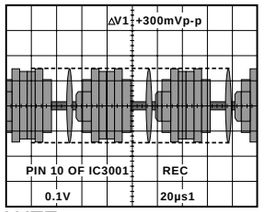


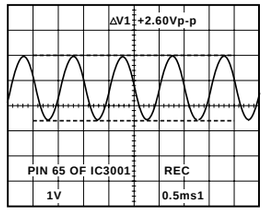
WF26



WF3



WF7



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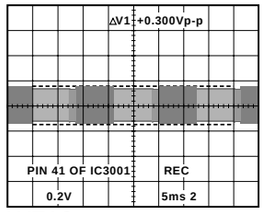

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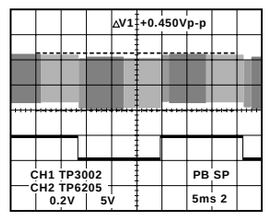
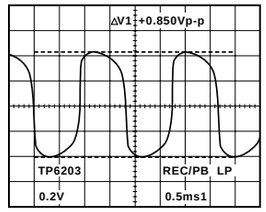


CH1 WF18
CH2 WF22



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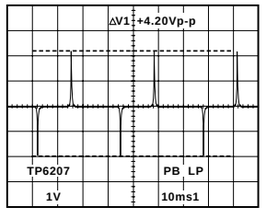

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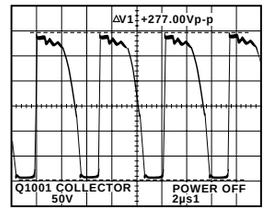

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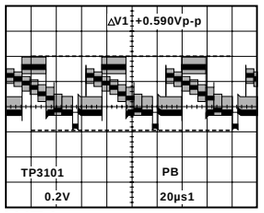
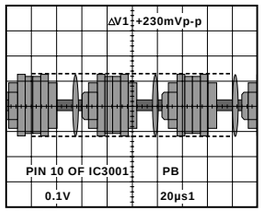


WF4



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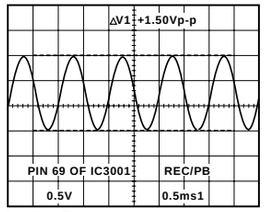

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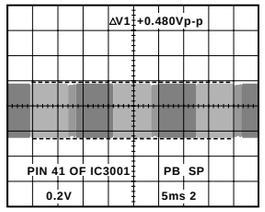
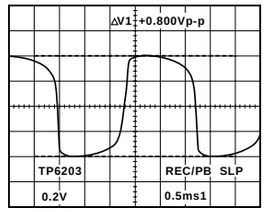
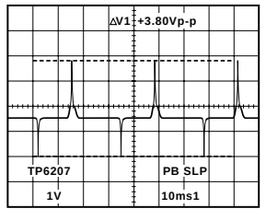


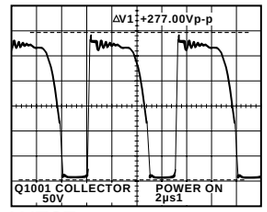
WF16



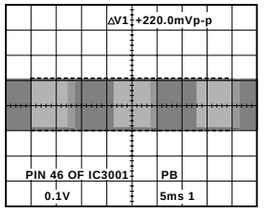
WF20



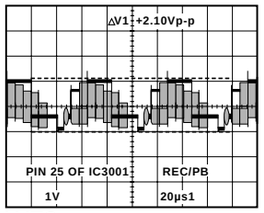
WF23



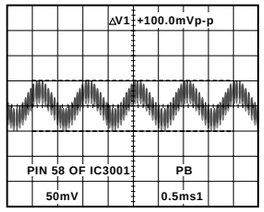
WF27



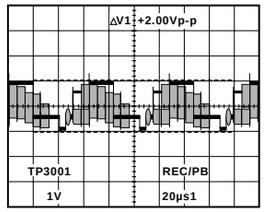
WF5



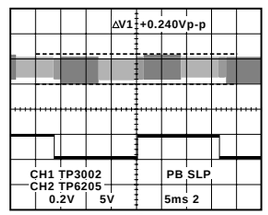
WF8



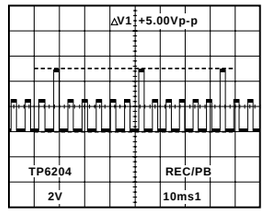
WF13



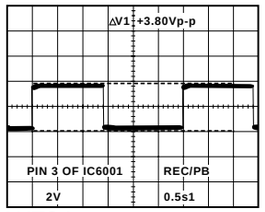
WF17



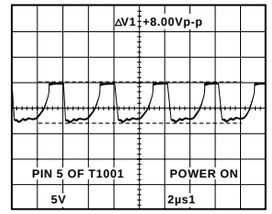
CH1 WF18
CH2 WF22



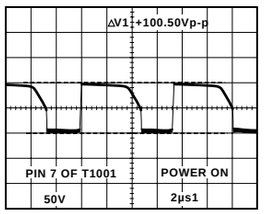
WF21



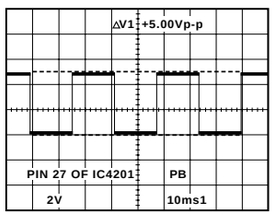
WF24



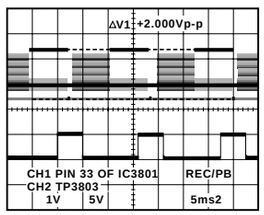
WF28



WF29

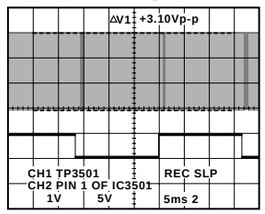


WF34

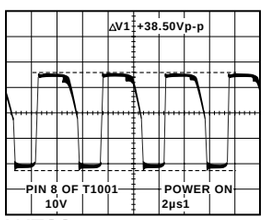


CH1 WF40
CH2 WF41

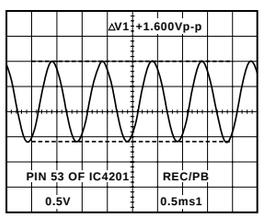
**Hi-Fi AUDIO / VIDEO HEAD AMP C.B.A.**



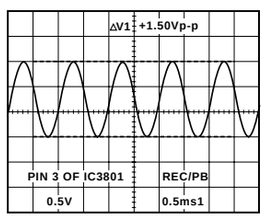
CH1 WF49
CH2 WF50



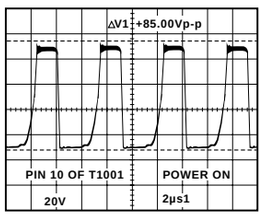
WF30



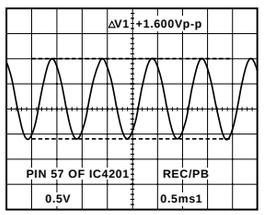
WF35



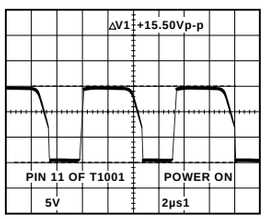
WF42



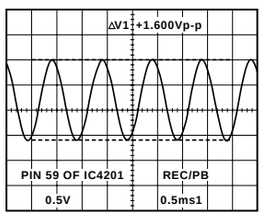
WF31



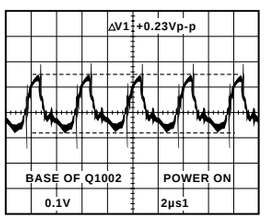
WF36



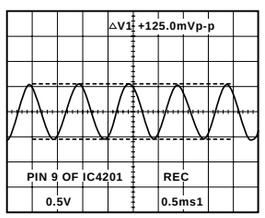
WF32



WF37



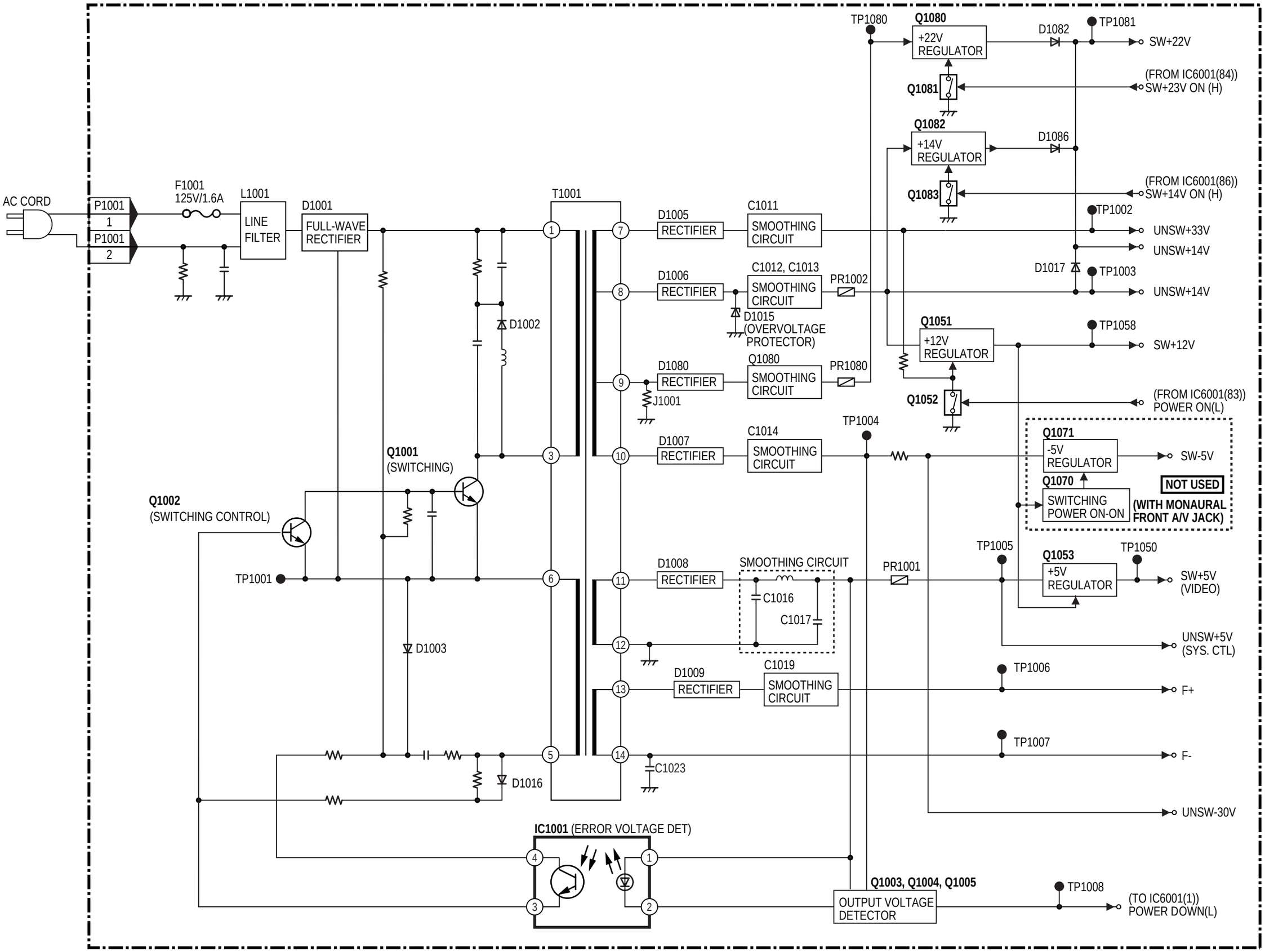
WF33



WF38

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A.


AC CORD
P1001 1
P1001 2
F1001 125V/1.6A
L1001 LINE FILTER
D1001 FULL-WAVE RECTIFIER
T1001
D1002
Q1001 (SWITCHING)
Q1002 (SWITCHING CONTROL)
TP1001
D1003
D1016
IC1001 (ERROR VOLTAGE DET)
D1005 RECTIFIER
C1011 SMOOTHING CIRCUIT
D1006 RECTIFIER
C1012, C1013 SMOOTHING CIRCUIT
D1015 (OVERVOLTAGE PROTECTOR)
PR1002
D1080 RECTIFIER
Q1080 SMOOTHING CIRCUIT
PR1080
J1001
D1007 RECTIFIER
C1014 SMOOTHING CIRCUIT
D1008 RECTIFIER
SMOOTHING CIRCUIT
C1016
C1017
PR1001
D1009 RECTIFIER
C1019 SMOOTHING CIRCUIT
C1023
TP1080
Q1080 +22V REGULATOR
D1082
TP1081
SW+22V
Q1081
(FROM IC6001(84)) SW+23V ON (H)
Q1082 +14V REGULATOR
D1086
Q1083
(FROM IC6001(86)) SW+14V ON (H)
TP1002
UNSW+33V
UNSW+14V
D1017
TP1003
UNSW+14V
Q1051 +12V REGULATOR
TP1058
SW+12V
Q1052
(FROM IC6001(83)) POWER ON(L)
TP1004
Q1071 -5V REGULATOR
SW-5V
Q1070 SWITCHING POWER ON-ON
NOT USED
(WITH MONAURAL FRONT A/V JACK)
TP1005
Q1053 +5V REGULATOR
TP1050
SW+5V (VIDEO)
UNSW+5V (SYS. CTL)
TP1006
F+
TP1007
F-
UNSW-30V
Q1003, Q1004, Q1005 OUTPUT VOLTAGE DETECTOR
TP1008
(TO IC6001(1)) POWER DOWN(L)

MAIN C.B.A.

REC VIDEO SIGNAL

PB VIDEO SIGNAL

HEAD AMP C.B.A. (FOR 4HEAD MODEL)

UHF/VHF TUNER/TV DEMODULATOR UNIT

RF

17 VIDEO

VIDEO 2

J6003

(WITH 2 HEAD) NOT USED

(FROM IC6001(23)) HEAD SW PULSE

(WITH 4 HEAD)

(FROM IC6001(98)) ROTARY SW

IC3101

CCD 1H DELAY

5 4

(TO IC6001(78)) ENVELOPE VOLTAGE

IC3001 (VIDEO PROCESS)

29 27 49 40

AT ENVELOPE DETECT

VIDEO IN 1

20 TUNER

18

16 LINE 1

LINE 2

REC

PB

REC/PB LUMINANCE SIGNAL PROCESS

REC PB PB-Y

PB REC-Y

REC REC-C

Y/C MIX

46 45 41 TP3002

P3551 1

REC/PB CHROMINANCE SIGNAL PROCESS

REC PB PB-C

34

OPERATION C.B.A.

VIDEO IN 2

P6302 14

P6320 14

REC PB

Y/C MIX ART V/H MIX

I²C CONTROL

13 25 10 12 1 3 7 8

(FROM IC6001(24)) V-LOCK PULSE

1 8 IC3101

CCD 1H DELAY

(TO/FROM IC6001(17)) I²C SERIAL DATA

(FROM IC6001(18)) I²C SERIAL CLOCK

IC3201

1 CCD 1H DELAY 8

Q3202 AMP

(WITH ADVANCE)

Q3875

(TO IC3801(33)) VIDEO

BUFFER

IC6001

49 OSD CHARACTER MIX 47

Q3001 BUFFER

Q3201 PHASE COMPENSATOR

R3205 CNR GAIN

R3204 CNR PHASE

TP3001

(WITH CNR)

VIDEO OUT

IC3501 (HEAD AMP)

TP3501

SP 18

LP/SLP 16

REC PB SP LP/SLP

4 6 13 11

L R L R

P3501 1

30

31 32 1

P3503 6 5 4 1 2 3

VIDEO SP L HEAD

VIDEO SP R HEAD

VIDEO LP/SLP L HEAD

VIDEO LP/SLP R HEAD

(FROM IC6001(23)) HEAD SW PULSE

(FROM IC6001(99)) HEAD AMP SW

(FROM IC6001(62)) PB(L)

HEAD AMP C.B.A. (FOR 2HEAD MODEL) NOT USED

IC3501 (HEAD AMP)

TP3501

18 6 4

REC PB L R

P3501 1

30

31 1

P3503 1 2 3

VIDEO L HEAD

VIDEO R HEAD

(FROM IC6001(23)) HEAD SW PULSE

(FROM IC6001(62)) PB(L)

REC AUDIO SIGNAL
PB AUDIO SIGNAL

MAIN C.B.A.

UHF/VHF TUNER/TV
DEMODULATOR UNIT

RF
14 AUDIO
AUDIO 1

(WITHOUT Hi-Fi AUDIO)
C4018
R4018

Q4001
+5V
Q4002
Q4003

IC3001 (AUDIO PROCESS)
56

(WITHOUT
FRONT A/V JACK)
J4002
AUDIO
IN 1
71
73
TUNER
LINE
PB
AGC DET
AGC
REC-OFF
REC AMP
REC-ON
65
MUTE
57
58
PB AMP
60

(WITH MONAURAL
FRONT A/V JACK)
NOT USED

IC4151
(INPUT SELECT)
13 LINE1
14
12 LINE2
11
(FROM IC6001(19))
INPUT SELECT 2

OPERATION C.B.A.
AUDIO
IN 2
P6302 19
P6320 19

LINE
AMP
AUDIO
MUTE(H)
69
75
I²C
CONTROL
7
8
(TO/FROM IC6001(17))
I²C SERIAL DATA
(FROM IC6001(18))
I²C SERIAL CLOCK
(FROM IC6001(59))
AUDIO MUTE(H)

(WITH Hi-Fi AUDIO)
(FROM IC4201(61))
NORMAL AUDIO
(TO IC4201(62))
NORMAL AUDIO

(TO IC3801(3))
AUDIO
(WITH ADVANCE)

J4003
Q4006
Q4004
DRIVE

AUDIO
OUT
J4001
R4013
(WITHOUT Hi-Fi AUDIO)

BIAS OSC
T4101, Q4101

P6202 3
P6202 1
P3551 3
P3551 4

HEAD AMP C.B.A
P2601 3
P2601 1
P3501 3
P3501 4

P4091 2
P4091 1
P4091 4
P4091 3

AUDIO CONTROL
HEAD UNIT
P4092 2
P4092 1
P4092 4
P4092 3

AUDIO
HEAD
AUDIO
ERASE
HEAD

FULL ERASE HEAD UNIT
P4001 2
P4001 1
PIN 2
PIN 1
FULL
ERASE HEAD

REC AUDIO SIGNAL
PB AUDIO SIGNAL

MAIN C.B.A.

UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
SIF
AUDIO
15
1

(FROM IC6001(26)) 3.58MHz
(FROM IC3001(79)) 3.58MHz
J4204
J4203
Q4201
BUFFER
R4227
(TO IC6001(82)) MTS MODE
(TO IC6001(60)) AUDIO DEFEAT(H)
(TO IC6001(29)) Hi-Fi PB(H)

(WITH SPATIALIZER)
NOT USED
TO/FROM SPATIALIZER
PIN 1
PIN 3
PIN 5
PIN 7

C4921
FL4901
4.5MHz BPF
3
1

IC4201 (Hi-Fi AUDIO PROCESS)
56
45
28
48
MTS/SAP SIGNAL PROCESS
MATRIX
MUTE CONTROL
ENV DETECTOR
TUNER
LINE1
LINE2
(R-CH)
(L-CH)
R
L+R
L
MUTE
Hi-Fi
MIX
NORMAL
R-CH Hi-Fi AUDIO SIGNAL PROCESS
L-CH Hi-Fi AUDIO SIGNAL PROCESS
AGC DET
AGC AMP
REC AMP
9
10
61
53
59
57
14
15
24
21
22
29
30
27

HEAD AMP C.B.A.
P4451 2
P4451 3
P4451 4
P4401 2
P4401 3
P4401 4
P3503 7
P3503 8
P3503 9
Hi-Fi AUDIO L HEAD
Hi-Fi AUDIO R HEAD

TP4204
TP4203
TP4202
TP4201
AUDIO IN1 R-CH
AUDIO IN1 L-CH
AUDIO OUT R-CH
AUDIO OUT L-CH

(WITHOUT SPATIALIZER)
J4202
J4201

OPERATION C.B.A.
AUDIO IN 2 R-CH
AUDIO IN 2 L-CH
P6320 16
P6320 19

AUDIO MUTE(H)
36
62
I²C CONTROL
42
43
(TO IC3001(73)) NORMAL AUDIO
(FROM IC6001(59)) AUDIO MUTE(H)
Q4004 DRIVE
(TO/FROM IC6001(17)) I²C SERIAL DATA
(FROM IC6001(18)) I²C SERIAL CLOCK
(FROM IC3001(69)) NORMAL AUDIO
(FROM IC6001(27)) Hi-Fi HEAD SW PULSE

Q4005
Q4006
Q4007

CAPSTAN STATOR C.B.A.

MAIN C.B.A.

**IC2501** (LOADING MOTOR DRIVE)

LOADING MOTOR DRIVE

15 LOADING MOTOR DRIVE

16 LOADING MOTOR DRIVE

19 LOADING MOTOR DRIVE

21 LOADING MOTOR DRIVE

P2502 7 — P6201 7 — 7 LOADING MOTOR FORWARD(H)

P2502 5 — P6201 5 — 6 LOADING MOTOR REVERSE(H)

P2503 2

P2503 1

LOADING MOTOR: + M -

**IC6001** (SYSTEM CONTROL MICROCONTROLLER)

VDD 36 — +5V — TP6019 — TP6018 — TP6017

MODE SW POSITION C 95 — 4

MODE SW POSITION B 96 — 3

MODE SW POSITION A 97 — 2

1

SW6002 (MODE SELECT SWITCH)

| PIN NO. OF IC6001 / MODE | A (97) | B (96) | C (95) |
|---|---|---|---|
| FF/REW | H | H | L |
| BRAKE | L | H | H |
| PLAY/CUE/SLOW/STILL | L | H | L |
| REVIEW | H | L | L |
| STANDBY/STOP | H | L | H |
| CASSETTE DOWN | L | L | H |
| EJECT | L | L | L |

IR DATA 5 — U6301 INFRARED RECEIVER UNIT

**Q6001,Q6005, Q6006,Q6007**

+5V — RESET — 25 RESET

(FROM POWER SUPPLY CIRCUIT) POWER DOWN (L) — 1 POWER DOWN(L)

TP6001

+5V

3 TAKEUP REEL PULSE

4 SUPPLY REEL PULSE

79 TAKEUP PHOTO TR

80 SUPPLY PHOTO TR

SW+12V

SW+5V

D6001 SENSOR LED

**IC6002** (TAKEUP REEL SENSOR)

**IC6003** (SUPPLY REEL SENSOR)

**Q6010** (TAKEUP PHOTO TR)

**Q6009** (SUPPLY PHOTO TR)

X6001 (14.3MHz)

OSC — 38 OSC 1 — 37 OSC 2

SW6001 SAFETY TAB SW — 30 SAFETY TAB BROKEN(H)

(TO IC3501(25)) DELAY REC+12V

**Q6002** — SW+12V

**Q6003** — 28 VIDEO DELAY REC(H)

**IC6005** (MEMORY)

5 I²C SERIAL DATA

6 I²C SERIAL CLOCK

I²C SERIAL DATA 17 — (TO/FROM IC3001(8)) I²C SERIAL DATA

I²C SERIAL CLOCK 18 — (TO IC3001(7)) I²C SERIAL CLOCK

(TO/FROM IC4201(43)) I²C SERIAL DATA

(TO IC4201(42)) I²C SERIAL CLOCK

**(WITH Hi-Fi AUDIO)**

AUDIO CONTROL HEAD UNIT

HEAD AMP C.B.A.

MAIN C.B.A.

CONTROL HEAD

P4092 5 / P4092 6

P4091 5 / P4091 6

P2601 5 / P2601 2

P6202 5 / P6202 2

TP6206

**IC6001** (SERVO MICROCONTROLLER)

75 REC CTL AMP

74 PB-ON

NEGATIVE PB CTL SLICER

+5V

1/2 Vcc

72

69

70

TP6207

76 POSITIVE PB CTL SLICER

21 CAP REV(H)/ STOP(M)/ FWD(L)

SELECT

TP6203

67 SCHMIT

COUNT DOWN

68 AMP

TP6209

INTEGRATION

33

TP6201

PG

SELECT

TP6003

ENVELOPE DETECTOR

78

(FROM IC3001(40)) ENVELOPE VOLTAGE

V-LOCK PULSE GENERATOR

23

(TO IC3001(13)) V-LOCK PULSE

CAPSTAN STATOR C.B.A.

CAPSTAN COIL

**IC2501** (CAPSTAN MOTOR DRIVE)

Q2501 HALL TRANSIS-TOR 4 3

Q2502 HALL TRANSIS-TOR 6 5

Q2503 HALL TRANSIS-TOR 2 1

POSITION SIGNAL PROCESS

CAPSTAN MOTOR DRIVE 25 24 22

DIFFER-ENTIAL AMP 10 7 12

P2502 4 / P2502 10 / P2502 8

P6201 4 / P6201 10 / P6201 8

**IC2505**

MR HEAD 2 3 GND

P2502 9 / P6201 9

PWM

CAPSTAN SPEED COMPENSATOR

MIX

CYLINDER/ CAPSTAN PHASE COMPENSATOR

MIX

PWM

CYLINDER SPEED COMPENSATOR

REC CTL / TR MM GENERATOR

TP6205

23

(TO IC3501(1)) HEAD SW PULSE

CYLINDER UNIT

HEAD AMP C.B.A.

**IC2601** (CYLINDER MOTOR DRIVE)

HALL IC

CYLINDER MOTOR

P3501 4 / P3501 6 / P3501 3 / P3501 2 / P3501 1

P2601 9 / P2601 7 / P2601 10 / P2601 11 / P2601 12

P6202 9 / P6202 7 / P6202 10 / P6202 11 / P6202 12

7 6 1 2 16

PG/FG PULSE GENERATOR

CYLINDER MOTOR DRIVE

4 9

65 22 34 20

PG/ FG SEPARATOR

HEAD SW SIGNAL GENERATOR

FORCED ACCELERATION

SLOW /STILL CONTROL

CAP TORQUE LIMIT

INTEGRATION

TP6202

(WITH 4 HEAD)

HEAD AMP CONTROL

ROTARY SIGNAL GENERATOR

98

(TO IC3001(49)) ROTARY SW

HEAD AMP SELECT SIGNAL GENERATOR

99

(TO IC3501(32)) HEAD AMP SW

100

(FROM IC3501(33)) ENVELOPE DET

MAIN C.B.A.

| OUT / IN | SCAN 1 PIN 93 | SCAN 2 PIN 94 |
|---|---|---|
| DATA 8 PIN 40 | —— | REW /REV |
| DATA 9 PIN 41 | —— | PLAY |
| DATA 10 PIN 43 | —— | STOP /EJECT |
| DATA 11 PIN 44 | POWER | CH DOWN |
| DATA 12 PIN 45 | CH UP | TV/VCR |
| DATA 13 PIN 46 | REC /TIME | FF /CUE |

IN

OUT

**IC6001**
(SYSTEM CONTROL MICROCONTROLLER)

40 KEY DATA 8
41 KEY DATA 9
43 KEY DATA 10
41 KEY DATA 11
44 KEY DATA 12
46 KEY DATA 13

93 SCAN 1
94 SCAN 2

IC6301 CS (L) 57
SERIAL DATA 1 13
SERIAL CLOCK 1 11
IC6301 CLK 35

**IC6301** (INDICATOR PANEL CONTROL)
**(PV-V4600/PV-V4620/PV-V4620-K/PV-V4630-K)**

2 IC6301 CS (L)
4 SERIAL DATA 1
5 SERIAL CLOCK 1
3 IC6301 CLK

GRID 1G 23
GRID 6G 28
GRID

DISPLAY TUBE
FIP

SEGMENT 1 11
SEGMENT 12 22
SEGMENT

OPERATION C.B.A.

**IC6401** (CATV CONTROL)

CATV CS (L) 15 — P6302 6 — P6320 6
CATV DATA 16 — P6302 7 — P6320 7
CATV SCK 3 — P6302 8 — P6320 8 — 55 CATV SCK

IR CODE 8 — Q6401 — D6402 D6403 D6401 INFRARED LED — +14V

VDD 9 — +5V

RESET 13 — IC6403 RESET

X IN 11 — X6401 (4MHz) — OSC

X OUT 10

**(WITH CABLE BOX CONTROL)**

**IC6301** (INDICATOR PANEL CONTROL)
**(PV-V4640/PV-V4640-K/PV-V4660)**

22 IC6301 CS (L)
24 SERIAL DATA 1
23 SERIAL CLOCK 1

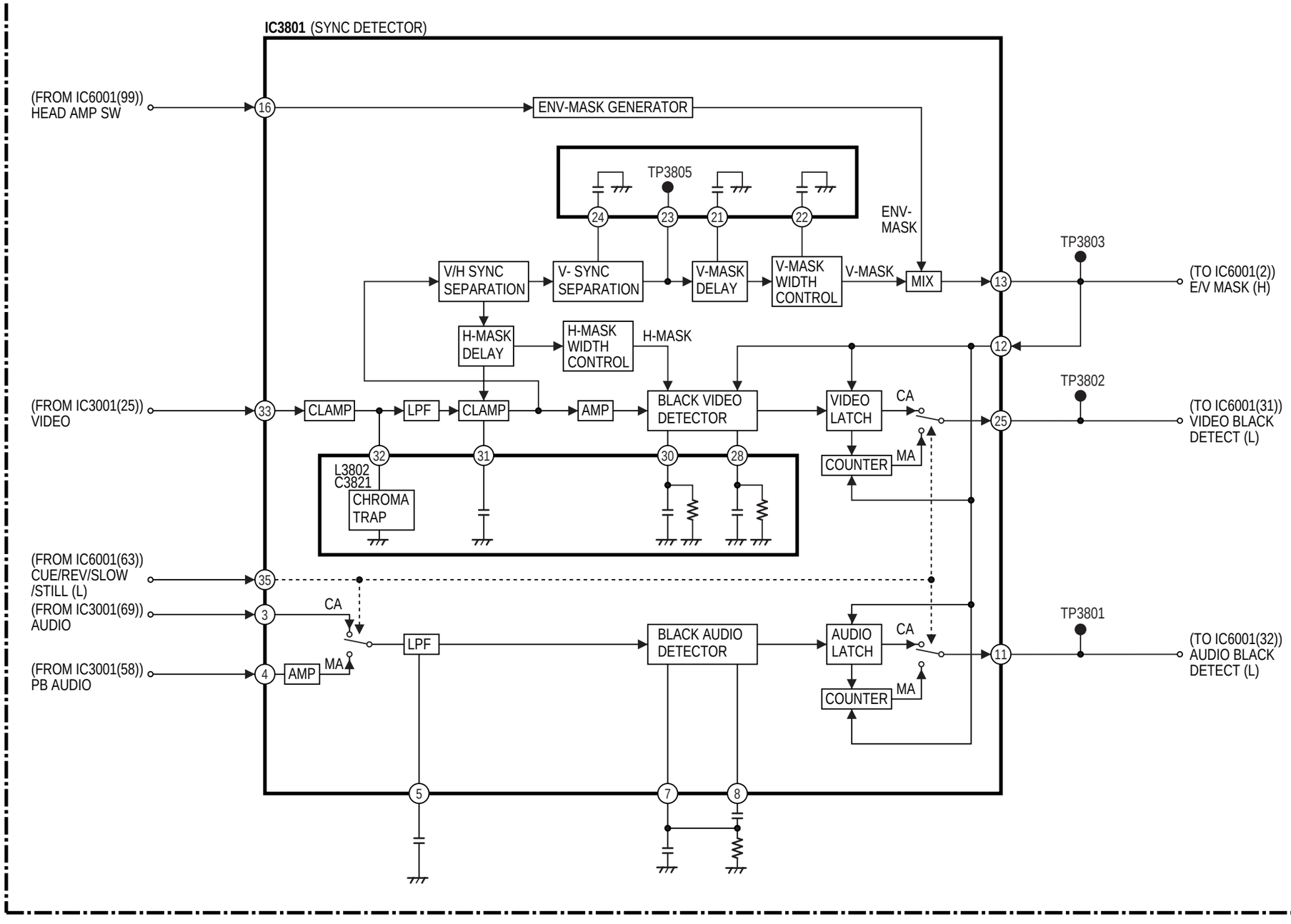
GRID 0G 15
GRID 3G 12
GRID 4G 10
GRID 10G 4
GRID

DISPLAY TUBE
FIP

SEGMENT 0 31
SEGMENT 13 44
SEGMENT 14 1
SEGMENT

X IN 20
X OUT 19
X6301 4MHz

MAIN C.B.A.


IC3801 (SYNC DETECTOR)
(FROM IC6001(99))
HEAD AMP SW
16
ENV-MASK GENERATOR
TP3805
24
23
21
22
ENV-
MASK
V/H SYNC
SEPARATION
V- SYNC
SEPARATION
V-MASK
DELAY
V-MASK
WIDTH
CONTROL
V-MASK
MIX
13
TP3803
(TO IC6001(2))
E/V MASK (H)
H-MASK
DELAY
H-MASK
WIDTH
CONTROL
H-MASK
12
TP3802
(FROM IC3001(25))
VIDEO
33
CLAMP
LPF
CLAMP
AMP
BLACK VIDEO
DETECTOR
VIDEO
LATCH
CA
25
(TO IC6001(31))
VIDEO BLACK
DETECT (L)
32
31
30
28
L3802
C3821
CHROMA
TRAP
COUNTER
MA
(FROM IC6001(63))
CUE/REV/SLOW
/STILL (L)
35
(FROM IC3001(69))
AUDIO
3
CA
LPF
BLACK AUDIO
DETECTOR
AUDIO
LATCH
CA
TP3801
11
(TO IC6001(32))
AUDIO BLACK
DETECT (L)
(FROM IC3001(58))
PB AUDIO
4
AMP
MA
COUNTER
MA
5
7
8